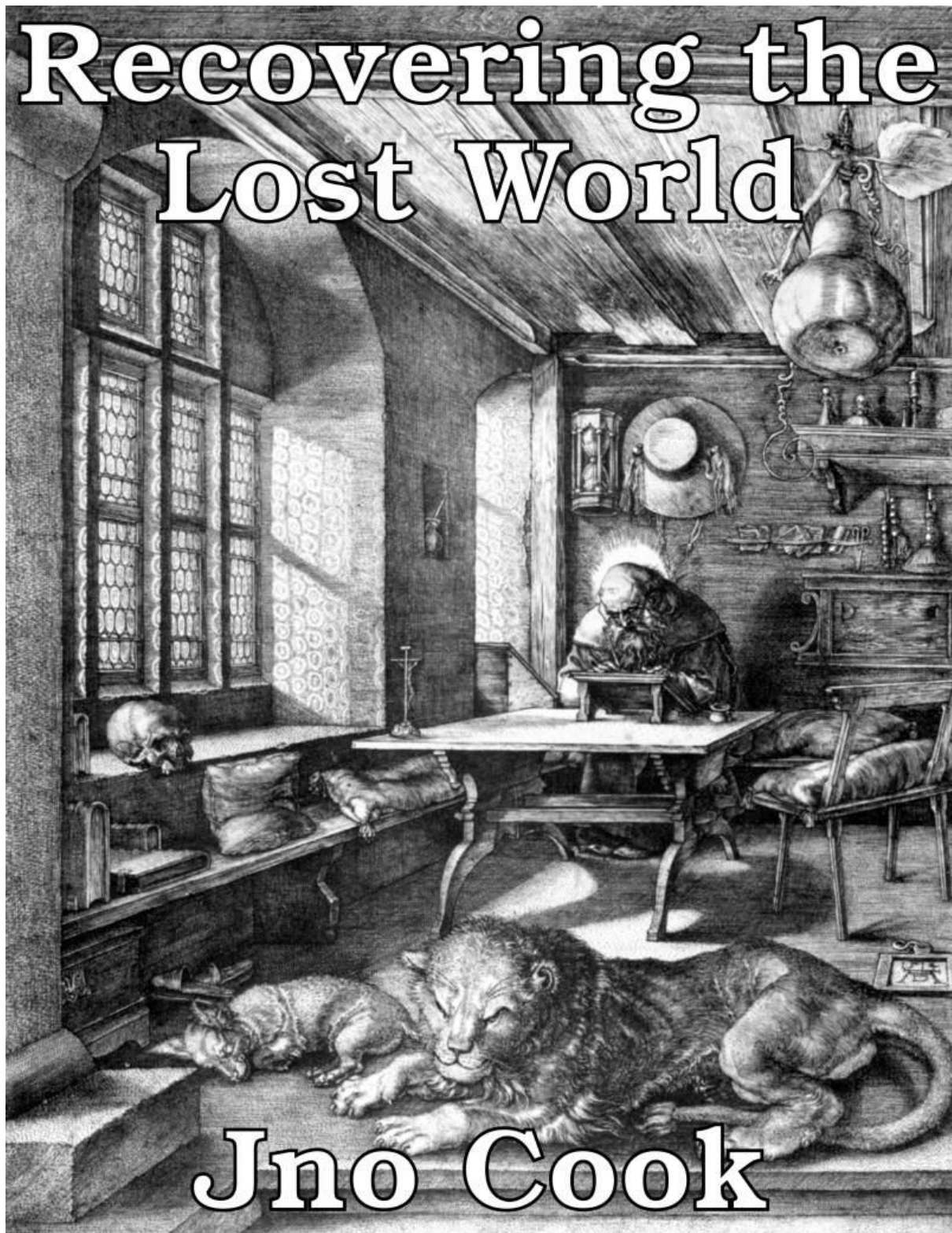


Recovering the Lost World



Jno Cook

Recovering the Lost World, Volumes 1,2,3

Jno Cook

A decade in the making, the first volume of “Recovering the Lost World” reconstructs for the reader the celestial drama that resulted in the civilizations of our modern world: a sky dominated by Saturn and other planets, a southern sky obscured by equatorial rings. The text next discusses well-established prehistory: the Chicxulub crater of 60 million years ago, the Tunguska explosion of 1908, the impact at the start of the Younger Dryas, which caused Earth to get as cold as it ever had, and the Peratt plasmoids which were subsequently seen in the south — an apparition we call the Phoenix. Then follows the mythology of remote antiquity: the start of time, the benign era of the Gods, the polar configuration when Saturn was located above the north horizon as a giant globe. The world flood of 3147 BC is recounted and the leave-taking of the Gods, followed by the construction of pyramids world-wide. Volume 2 carries on from there.

Volume two of “Recovering the Lost World” continues the sweeping concepts and specific dates of antiquity, with the identification of Jupiter as the midnight sun, the flood of Noah, an event which will later be recalled as the Day of the Dead, the destruction of Sodom and Gomorrah, and the Exodus of Moses. In the 8th and 7th century BC Mars repeatedly cause massive destruction in passing close by Earth. This is supported by archaeological sources of the eastern Mediterranean in addition to Mesoamerican data. Nearly 200 million people died, and hundreds of cities and hill-top citadels were destroyed and covered in yards of ashes. Then in 685 BC, Venus and Mercury (as Phaethon) blazed in the sky for 40 days, ending when a plasmoid from Jupiter landed at the Sun. This was witnessed and recorded by people worldwide. The tilt of the Earth changed from the Big Dipper to the Little Dipper. The Maya Chilam Balam list the exact dates. The equinox moved 15 days ahead.

Volume three of “Recovering the Lost World” starts with a chapter of the Chilam Balam which appears to be records dating back 40,000 years. Additionally, the Olmec sites offer an amazing series of alignments with sunsets at the horizon, representing important calendar dates celebrating changes in the orbit of the Earth since 1440 BC. A half dozen alignments are used some 40 times among a dozen sites. This is followed by notes on the importance to the Olmecs and Maya of the these calendar days, which suggests a long history of the primacy of ceremonial centers since about 2400 BC. A reading of the Popol Vuh follows. This volume includes as Appendixes: notes on Chronology and Celestial Mechanics, and topics like changes in the Earth’s axis, the Palette of Narmer, the Canopus Decree, an expanding earth, epidemics, an extended chronology, the red ring left in the sky, the age of the Universe, plus a list of books and links.



1: Introduction and Background

[Preface](#) (index.php, 12K)

Contents: The starting premise of this text; who I am, why I wrote this text; accolades; file hits.

[Chapter 1: Introduction.](#) (lost.php, 57K)

Contents: What this site is about; the sledgehammer of ignorance; the history of objections; collation and synthesis.

[Chapter 2: A Synopsis.](#) (syn.php, 62K)

Contents: A synopsis of the website; verification of notions by others; items completely missed by other researchers.

[Chapter 3: The Osiris Mystery.](#) (intro.php, 69K)

Contents: The Osiris mystery; David Talbott's "Saturn Theory"; Wal Thornhill's plasma connection; the combined model and some objections.

[Chapter 4: The Nevada Conference.](#) (nevada.php, 49K)

Contents: The Nevada Conference; a comet's path; ice cover; seasonal plants; periodic extinctions; a new set of postulates.

[Chapter 5: The Absu and Speculation.](#) (cos.php, 67K)

Contents: The equatorial rings detailed; methods of forming postulates; accusations of speculation; Peratt's wrench in the works.

[Chapter 6: Alternate Cosmology.](#) (planets.php, 50K)

Contents: The standard and some alternative cosmologies; Saturn as a misfit in the Solar System; life on Earth.

2: Established Archaeology

[Chapter 7: Ice Ages and Humans.](#) (ice.php, 70K)

Contents: Recent glaciations; Homo erectus; the Acheulean Handaxe; Homo sapiens.

[Chapter 8: Tunguska and Chicxulub.](#) (tung.php, 128K)

Contents: preliminary planet interactions; stratospheric dust; Tunguska; Chicxulub; Grand Canyon; a Great Lakes atomic detonation.

[Chapter 9: Event of the Younger Dryas.](#) (dryas.php, 129K)

Contents: Firestone's paper of 2007; the Laurentide Ice Sheet; a likely sequence of events; the Great Lakes created; the Carolina Bays; earlier contacts with Saturn's plasmasphere.

[Chapter 10: A Timeline and Gimbutas.](#) (gim.php, 87K)

Contents: Earth placed below Saturn; the Hypsithermal; the Saturnian planet stack, a time line, Marija Gimbutas and Neolithic figurines; objections.

[Chapter 11: Saturn and Archaeology.](#) (arch.php, 91K)

Contents: Revisiting the Acheulean Hand Axe; the caves of Lascaux and others; Catal Huyuk transitional period.

[Chapter 12: The Peratt Column.](#) (peratt.php, 102K)

Contents: The Peratt Column; the three plasmoids; dating the first plasmoid; Pacific islands; the Opossum; Nazca lines; a survey of the world; Ley lines; Job; Carnac; Manu; the Heart of the Sky; Lepenski Vir; Sheela Na Gigs; Mari; Neith; Oannes; Kojiki; Cerberus.

3: Mythology and Remote Antiquity

[Chapter 13: The Creation.](#) (polar.php, 99K)

Contents: Starting from Chaos; an unexpected flood; the egg; creation; the eye of Ra; petroglyphs; the city on the horizon.

[Chapter 14: The Start of Time.](#) (time.php, 61K)

Contents: The God visits Earth; the start of time; the first land; Horus the Hawk; gifts of the Gods; living in paradise.

[Chapter 15: The Era of the Gods.](#) (gil.php, 105K)

Contents: The King list; dating the Age of the Gods; barrows, henges, temple platforms.

[Chapter 16: The World Flood.](#) (flood.php, 82K)

Contents: The worldwide flood of 3147 BC; the battle of the Gods; the Absu.

[Chapter 17: The Gods Leave.](#) (leave.php, 60K)

Contents: The Gods leave; return of the Axis Mundi; a new era.

[Chapter 18: Pyramids and Henges.](#) (oldk.php, 122K)

Contents: Horus on his mountain; the Palermo Stone; the pyramids; barrows after 3100 BC, henges after 3100 BC.

4: Narratives of Ancient History

[Chapter 19: The Midnight Sun.](#) (sun.php, 104K)

Contents: The Midnight Sun; histories; something is missing; developing consciousness; the flood of Noah.

[Chapter 20: The Flood of Noah.](#) (noah.php, 123K)

Contents: The flood of Noah reconsidered; the fall of the Absu; a flood from the Sky; the Moon on fire; the extinction of Jupiter.

[Chapter 21: Day of the Dead.](#) (jup.php, 159K)

Contents: Blood and alcohol; the ten suns; Day of the Dead; Tower of Babel; Return of Mars; Sodom and Gomorrah.

[Chapter 22: The Exodus of Moses.](#) (moses.php, 145K)

Contents: The terror of Venus; Moses and Yahweh; the Ark; the psychosis of Moses; Joshua.

5: The Start of Modern History

[Chapter 23: Destruction by Mars.](#) (quet.php, 136K)

Contents: Destructions by Mars; calendar reforms; a blast from heaven.

[Chapter 24: The Tablets of Ammizaduga.](#) (bolt.php, 106K)

Contents: The Tablets of Ammizaduga; the bolt from Jupiter; the fall of Phaethon; the twins.

[Chapter 25: The Hour of Phaethon.](#) (hist.php 112K)

Contents: Dating the thunderbolt of Phaethon; the start of history; the sky in disarray; change in the equinox.

[Chapter 26: Hezekiah and Babylon.](#) (star.php, 132K)

Contents: The star in the crescent; Hezekiah, Babylon; philosophy, religion, science; the presence of God.

[Chapter 27: The Sibylline Star Wars.](#) (sib.php, 75K)

Contents: The Great Year, new locations of the stars; Nonnos; two meteors; Denderah.

6: The Parallel Mesoamerican Record

[Chapter 28: Language and Causality.](#) (lang.php, 133K)

Contents: Consciousness; languages; becoming human; boat people; children.

[Chapter 29: The Maya Calendar.](#) (maya.php, 76K)

Contents: The beginning of time; the first calendar; Tzolkin; Haab; Long Count; Katun Cycle, four ages.

[Chapter 30: The Chilam Balam Books.](#) (chil.php, 230K)

Contents: The Katun cycle, the Thirteen, the Nine; Nine Lives; directional trees; 2349 BC; the burning tower; 8th century; Katun 3-Ahau; the day of Kan; Nine Fragrances.

[Chapter 31: The Olmec Record of the Past.](#) (rec.php, 145K)

Contents: Before Creation; the three-cornered stone; the endless nights; God wakes up; survey of the world; the Third Creation.

7: Long Range Mesoamerican Astronomy

[Chapter 32: Olmec Site Alignments.](#) (olmec.php, 159K)

Contents: A crisis with the Sun; Izapa; Edzna; San Lorenzo; La Venta; Teotihuacan; Monte Alban; Pleiades.

[Chapter 33: The Day of Kan.](#) (kan.php, 106K)

Contents: The Day of Kan; the course of the "may"; the third conquest; summary.

[Chapter 34: The Popol Vuh.](#) (popol.php, 150K)

Contents: Northern Gods, southern Gods; Seven Macaw; Zipacna and Earthquake; Hunahpu and Xbalanque; the ballgame in Xibalba; into the oven; Tulan; first fathers; tribal Gods; the dawning; the bundle of flames; the Quiche nation.



Appendixes

[Appendix A: Notes on Chronology.](#) (chron.php, 169K)

Contents: Sources for dates of the King lists; parallel chronologies; calendars; Carbon-14 dating; Precambrian.

[Appendix B: The Celestial Mechanics.](#) (mech.php, 184K)

Contents: Asteroid belt; outer orbits, inner orbits; plasma interactions; 52-year cycle of Venus; close encounters of Mars.

[Appendix C: Mesoamerican Site Alignments.](#) (align.php, 95K)

Contents: This is the file of alignment calculations referenced in Chapter 34, "Olmec Site Alignments" above.

[Appendix D: Change in the Axis.](#) (axis.php, 35K)

Contents: A 25-degree inclination; investigating megalithic construction as a response to disturbances in 2000 BC, possibly by Mercury.

[Appendix E: Polar Relocations.](#) (flip.php, 58K)

Contents: The source of the problem; data from 747 BC; Earth as a gyroscope; data from 1500 BC; flipping the pole; lack of glaciation in Siberia; frozen mammoths; other polar relocations.

[Appendix F: The Palette of Narmer.](#) (narmer.php, 33K)

Contents: Reading the Egyptian Palette of Narmer.

[Appendix G: Deep Impact.](#) (deep.php, 46K)

Contents: Comet Tempel 1; Deep Impact; predictions; the fireworks; the aftershocks; summing up; two weeks later; two months later; six months later; two years later; six years later.

[Appendix H: Other Cosmologies.](#) (other.php, 35K)

Contents: Sitchin; planet X; ancient astronauts; bible aliens; God's math; supernova; Orion's belt; Mayan 2012 cycle; hologram; de Grazia's binary star; Patten and Windsor's Mars Wars; Ackerman's Firmament; Gilligan's God-King Scenario; Clube and Napier.

[Appendix I: The Canopus Decree.](#) (can.php, 31K)

Contents: The Canopus Decree; Sothic dating; Venus rising; Sirius rising; implications; further notes.

[Appendix J: Expanding Earth.](#) (exp.php, 15K)

Contents: Pterodactyls; expansion; S. Warren Carey; questions.

[Appendix K: Venus and Epidemics.](#) (epi.php, 18K)

Contents: Spanish flu; Lockyer Observatory; diseases from space.

[Appendix L: Long-Range Chronology.](#) (long.php, 18K)

Contents: From 4.6 billion years ago.

[Appendix M: The Red Sirius.](#) (sir.php, 16K)

Contents: Ptolemy; the Maya; Gregory of Tours; Al-Sufi; Sima Qian and Yu Ji-cai.

[Appendix N: Age of the Universe.](#) (age.php, 6K)

Contents: The Milky Way; the local group; the Virgo supercluster; the visible universe.

[Appendix O: List of Books.](#) (books.php, 47K)

Contents: Relevant books on allied topics.

[Appendix P: List of Links.](#) (links.php, 15K)

Contents: Links pertaining to the Saturnian theories.

[Appendix Q: Change Log.](#) (chlog.php, 56K)

Contents: Synopsis of changes for the last few years.



Preface.

**For Claudia George, who said,
"Write a history of everything."**

\$Revision: 42.7 \$ (index.php)

Contents of this Preface: [\[About This Book\]](#) [\[Who I Am\]](#)
[\[Speculation, Changes, and Proof\]](#) [\[What Others Say\]](#)

About This Book

This book presents a cosmology based entirely on the supposition that our coherent worldwide mythology is history rather than creative fiction writing in antiquity.

As a result, this text is about the catastrophes experienced by Earth in remote antiquity and also in more recent times. Some have been unbelievably destructive, which has been recognized recently by archaeologists in their investigation of the event at the start of the Younger Dryas period.

The text will tell what in remote antiquity suggested to humans the idea of an afterlife, why the gods of more recent times were conceived of as real, and how phenomena experienced thousands of years ago are still reflected today in politics and religions.

I will attempt to address the development of religious notions, the cultural icons of antiquity, and will attempt to make sense of the strange behavior and concerns of our ancestors.

This text will also explain the diversity of Solar System planets, and the geological features of the Earth. Lastly, the text will also tell how the length of the year changed repeatedly, and how the axial inclination of the Earth changed.

What will not be suggested are alien intervention, exploding meteors, or collisions with other planets. This text is also not about religion or theology. It's

about history.

It is a history that mainstream academics do not deal with, in spite of the fact that all the information presented here is readily available, and remains within the scope of physics and accepted chronology. It simply needs to be reconstructed. That is the task I have undertaken.

The first section will assert the thesis that worldwide mythology is history and it will give the philosophy behind this alternative cosmology. The next section deals with accepted archaeology. The third section explores the most ancient history -- the oldest records of Mesopotamia and Egypt. After that we are into modern history. The last section starts with the Flood of Noah and ends with the destructions in the 8th and 7th century BC.

This text was written continuously over a ten-year period between 2001 and 2011, although often in short pieces and bursts of inspiration as data was fit to an established chronology. The text is about the length of *War and Peace*, and it can be read in 40 or 50 hours or in a month of evenings, perhaps by reading a chapter per night. The narrative themes are developed one at a time and are presented mostly in historical order.

It is a long book, because the events of the last 10,000 years are complex, and because I needed to set them out one by one against the story of the past as it has been handed down to us. If you are looking, for example, for evidence of the Noachian Flood, you will find the information spread over four chapters, and alternately denied and asserted. The real history of this world is not simple.

Yes, there was a flood. In fact, there were two massive floods, and a third metaphorical flood with a lot of rain. It is this last which is known to us as the Flood of Noah. It was very impressive, involving a dragon or a deadly goddess, blood everywhere, and the resurrection of God.

You can skip some chapters and return to them later. The text is clearly divided between what is based on Mediterranean and related sources, and what is based on Mesoamerican sources. These latter are almost entirely from post-invasion documents, although based on very old codexes which are now lost to us.

The Mesoamerican sources are radically different from the oldest history of Egypt and Mesopotamia and yet they entirely validate the Mediterranean sources. It is almost beyond belief to think that the records of a Stone Age people could completely verify the chronology derived from Mediterranean

sources and provide additional details like seasonal calendar dates. It is also hard to believe how the Mesoamerican records apparently start in 40,000 BC as verified by parallel radio-carbon data.

Speculation, Changes, and Proof

I have done little more than connect the details of research by others, which I reference in the first chapters. As a result, very little of the following essay is speculative. Almost all of it can be backed up with currently available data and the theories of "Cosmic Electrodynamics." This last is otherwise known as plasma theory, which is based on long-standing concepts in electricity and field theory, and data gathered with space probes. But don't worry, I'll keep it simple.

Any speculation will be identified as such. More will be based on common sense and intuition. I'll detail my methods in a later chapter.

There have been numerous changes to this text, for many facets of the past have only slowly revealed themselves over the span of the last 10 years. But the changes are almost all in details. The overall narrative has remained the same since 2003.

And I'm not done yet: I have to move the source of the world flood to the South Pole; I may have to add in Mercury as the destroyer of northern regions. I have to move the first sighting of the southern ball plasmoids back to 10,900 BC.

Last, the reader will be looking for proof of my claims. Proof of specific ideas is at times overwhelming and at other times very sparse. But the strongest indication for the validity of the overall claims made here lies in the fact that the complete set of ideas explains almost all mythology with great ease, including many concepts which have remained entirely obscured under uniformitarian consensus and even ideas which have remained inexplicable to alternative cosmologists despite years of investigations.

Who I Am

I should mention who I am, and what drove me to write this text.

First, I am a visual artist (sculpture, installations), living in Chicago where I have taught photography for years. But I also have a background in electrical engineering, cinematography, public administration, and programming, and a

curiosity dating back a lifetime. More information is available at my website [<http://jnocook.net>].

Second, I researched and wrote this text mainly because a comprehensive narrative of events and a plausible physical explanation were lacking in the literature of catastrophism and alternative cosmologies. This is a void I have been attempting to fill over the last decade, initially for my own benefit. The text of the narrative is based on a carefully derived chronology and a celestial mechanics which has remained within accepted boundaries of physics.

Why This Text Is Presented on the Internet

This text is presented on the internet as webpages. The advantage of a web site is that it can be easily changed, added to, corrected, and expanded, while simultaneously having all of the ideas publicly available. The alternative of publishing this in printed book form would delay the availability, limit distribution to a select few, and allow no updates. And by going public I have been forced to complete the investigation and have been under pressure to make all of it coherent. Amazingly, additional details keep coming forward as the edits continue.

There is a set of chapters and appendixes available in pdf format also.

What Others Say

A few comments from readers, via infrequent emails.

- *"Absolutely fascinating and a masterpiece; when I came across your site my jaw slowly started dropping."* -- r houston
- *"Fantastic site, sweeping in scope."* -- EU forum fan
- *"A feeling ... of finally coming home."* -- h pluut
- *"If you are right then everything we know so far about human history is wrong."* -- r boerman
- *"Reads like one of those can't-put-it-down pageturners."* -- j smith
- *"I love reading your website. I am actually reading it a second time. I think your chronology is brilliant."* -- m harris
- *"I am not only enchanted but almost 'enthralled' by all this head-swimming learning."* -- d sessoms

- *"I started rereading your book this weekend and I could hardly put it down; your reconstruction makes so much sense."* -- d smith
- *"Very impressive; your site is one of the more accessible rundowns for the layman of Saturnism."* -- w radtke
- *"Fantastic. You have pulled together so many things."* -- j brookes
- *"The scenario you have laid out answers many questions I have had for years and the way you present it is very comprehensible."* -- d de santis
- *"This is truly an eye opener."* -- j dionne
- *"... spellbound by finally uncovering some deep history mostly hidden from public view."* -- a fitts
- *"... all of this has the force of a total paradigm shift. Suddenly most of the so-called mythological 'experts' -- such as Campbell, Eliade, I suppose Jung too -- seem rather laughable in many instances."* -- j west
- *"You have my undying admiration for the monumental research you have done."* -- j buche
- *"I'm starting on your book and am riveted!"* -- j h

Colophon

All the webpages are free of any requirement for specific fonts and font sizes (with one exception). So as a reader you ought to set your browser to some font type and font size that suits you for easy reading.

The exceptions are the tables, where a CSS script forces the use of Courier, so that the data of the tables will fall in-line correctly. No size is specified -- so set your monospaced font (Courier) to a size commensurate with the normal reading font you have selected.

I don't know what happens to typefaces and fonts when the HTML (PHP) files get converted to pdf. I'll sort that out later.

Image Credits

The sources for images are listed in the captions. Otherwise they are generated by the author. Icons are from public domain sources.

-- Portland, Oregon,
January 21, 2012

Special thanks for editorial assistance and word editing to Claudia George, Danford Vander Ploeg, Natan Rothstein, Kevin Widen, Kim Gibson.

Recent [\[visits\]](#) by domain name.



Chapter 1: Introduction.

\$Revision: 42.8 \$ (lost.php)

Contents of this chapter: [\[The Sledgehammer of Ignorance\]](#)
[\[The Father of Hamlet\]](#) [\[What this Site Is About\]](#) [\[Disbelieving History\]](#)
[\[The History of Objections\]](#) [\[The AAAS and the Heretic\]](#) [\[Validation\]](#)
[\[Mesoamerica\]](#) [\[Endnotes\]](#)

*"... a large planet stood above the North Pole
for a very long time."*

That is what all the mythology throughout the world uniformly states -- mythology from every nation, region, tribe, and period, in thousands of languages, in hundreds of forms, from every continent -- they all resound, "a large planet stood above the North Pole for a very long time." Every country, that is, except those more than 10 degrees below the equator.

The mythology of regions as far removed from each other as Siberia, North Africa, and Guatemala all agree. If the mythology is true (and what other conclusion could be drawn), then the fact that a large planet stood at the northern horizon is true. How this could be, is a matter which this text will attempt to address.

As others have also done, I will suggest that this planet was Saturn. From other sources we can estimate that the planet Saturn moved on a wildly elliptical path around the Sun in the remote past, entering the Solar System at very long intervals. Some time in the last 3 million years, perhaps after passing Jupiter, Saturn was drawn into a much closer orbit around the Sun, very near Earth. And from 10,900 BC, Saturn captured and held the Earth in a sub-polar position lasting until 3147 BC, when Earth broke away.

*"You cannot reason a person out of a position
he did not reason himself into in the first place."
-- Jonathan Swift*

This is, however, exactly what I will attempt to do with this text: I will try to tell the actual history of the world and humanity -- in spite of the knee-jerk reactions and spitting noises you may see and hear from those who feel they know better. This is not my story, but the efforts of a great many people, and based on evidence in plain view.

My starting point is the postulate that myths throughout the world should be taken at face value. For the recurring worldwide mythology this is almost completely obvious. No other form of meaning can be assigned.

An attempt to apply local culture and limitations to mythology almost always meets with failure because of a lack of appreciation of the constant refrain of identical themes by peoples who have remained completely foreign to each other -- who have never had cultural contact. Any theory of mythology based on limited and local origins will fail to translate to the hundreds of additional instances across the world. This holds true also for all the variations of analogies that are presented to us as explanations of mythology: notions of ritual, model behavior, allegories of nature, personifications of the weather.

This leaves only the historicity of mythology. It has an evidential character which is absolute. If myth tells us that a large planet stood above the northern horizon, then we are stuck with this as fact. It cannot be negated, waived aside, or turned into an allegory. It only remains to investigate how this could have been so. Mythology is history.

Of course it is not always astoundingly clear. Frequently we are met with wording which is no longer understood, and frequently it will be easier for us to elicit metaphors from our own culture and language in an attempt to explain the inexplicable. This is probably the most frequently made mistake in investigating mythology.

Mythology represents a history stretching into the depths of time. On the other hand, the accepted mainstream history is a 2000-year record of rewriting and softening of facts, created for the sake of sanity and the comfort of your soul. It is a history of the survivors, written to cover their suspicions and allay any fears. It was initiated with the scrutiny of myths by Plato, and has grown since the Renaissance, culminating in the scientificism of the last hundred years. If the narrative based on conventional wisdom suits you, you should stop reading here, for the story presented here will get progressively stranger. Be comforted, though, that this will not be about crashing meteors, undetected planets, or visits by aliens.

The story of what has happened to Earth has no plot and no direction, and makes no sense. This is, in fact, one of the basic parameters of myth: there is no encompassing teleological design, it does not teach, it does not glorify, it does not propose any new arcane knowledge. It only recounts the past.

Returning now to that large object in the sky:

"The evidence of myth which points to Saturn having once occupied a position above Earth's north polar regions is voluminous. There is not a race on Earth that has not preserved at least one account which states as much. According to this evidence, Saturn occupied a central position in the north celestial regions. It rotated, and rotated widely; but other than that, it was immovable.

-- Dwardu Cardona (1978) [\[note 1\]](#)

It rotated, in fact, in a circle around the polar axis. From a vantage point 15 to 20 degrees of latitude further south than Mesopotamia and Egypt, the Guatemalan *Popol Vuh* recounts that it rose out of an ocean and sank back into it every day for what appears to have been some 2500 years starting 12,900 years ago.

The Sledgehammer of Ignorance

If you think the image of a large planet at the pole is strange, consider the following comments by the historians of science and philosophy, Giorgio de Santillana and Hertha von Dechend, both at Massachusetts Institute of Technology in the 1970s, in *Hamlet's Mill: an Essay on Myth and the Frame of Time* (1977). Von Dechend writes, in the Introduction:

"It was after having spent more than a year over at least 10,000 pages of Polynesian myths collected in the 19th century ... that the annihilating recognition of our complete ignorance came down upon me like a sledgehammer: there was no single sentence that could be understood."

And that was her reaction to only a single collection from the complete compendium of mythological tales of the past. Yet Von Dechend specifically noted, for the 10,000 pages of Polynesian myths she was looking at:

"But then, if anybody was entitled to be taken seriously, it had to be the Polynesians guiding their ships securely over the largest ocean of our globe, navigators to whom our much praised discoverers from Magellan to

Captain Cook confided the steering of their ships more than once. Thus, the fault had to rest with us, not with Polynesian myth."

De Santillana and Von Dechend eventually turned to astronomy in an attempt to explain the primary dilemma with all ancient mythology -- that object, real or fictional, above the northern horizon. However, they never achieved a synthesis, because they insisted on remaining entirely within the framework of handed-down uniformitarian astronomy, which assumes that things have always been as they are today.

The Father of Hamlet

"When analyzing the origin and evolution of the Solar System, we should recognize that its present structure is a result of a long series of complicated processes."

-- Hannes Alfven, at <http://history.nasa.gov/>

Things have not always been as they are today. Even NASA recognizes this. I will propose an alternative, defensible, and reasonable model of history which is entirely cohesive and complete as a template and which allows elucidation of all of world mythology, fitting it properly to times and places. There will not be a single mythical element which cannot be understood and placed in time.

For example, Von Dechend starts extensive speculation about *who was the father of Hamlet*. This is not Shakespeare's Hamlet, but is "Amlethus" of whom the 12th century Danish historian Saxo Grammaticus writes and who became the Hamlet of Shakespeare. Von Dechend opens with:

"The father of Saxo's Amlethus was Horvandillus, written also Orendel, Erentel, Earendel, Oervandill, Aurvandil, whom the appendix to the Heldenbuch pronounces the first of all heroes that were ever born."

We can close up these six pages of meanderings of von Dechend's Appendix 2 with the single statement that Hamlet's father was "He of the Arrows" -- the figure seen periodically for 7000 years in the south skies since 10,900 BC. The existence of this figure is known from contemporary research of ancient petroglyphs and laboratory plasma stream discontinuities (done by others), and reported on later in this text. Hamlet is Saturn, the planet above the north horizon. Saturn of the north horizon has a voluminous mythology.

Hamlet's father ("He of the Arrows") was the southern ball plasmoid, seen in remote antiquity at 435,000 miles (700,483 km) below the South Pole (and offset by about 15 or 30 degrees), identified by Anthony Peratt's group of plasma researchers in 2003. "He of the Arrows" is "She of the Arrows," the Egyptian and North African goddess Neith. She existed in the far south before Saturn was ever seen, and when she disappeared, Saturn showed up in the north.

Von Dechend comes so close, but she cannot place this in context, like we can. She writes:

"Decisive seems to us the derivation from 'or' equals 'arrow', suggested by Grimm, and by Uhland, who explained Orendel as the one 'who operates with the arrow.'"

It is so simple. The template developed in this text explains this mythology and almost all other mythology with great ease. And it manages to explain the many concepts which have remained entirely discordant under uniformitarian consensus, as well as many baffling ideas and images which have eluded competent researchers in catastrophism.

What This Site Is Really About

This is a cosmology. It is not the traditional handed-down narrative passed off as the history of everything. It is an alternative -- one which is very extensive -- quite complete and accurate. My starting premise was to hold worldwide mythology as absolute and believable, although at times very obscure. My method subsequent to this starting position was the collection of myths and iconography, and then to develop, in turn, a chronology of events (Appendix A) and a likely process of celestial mechanics (Appendix B). At that point I started a narrative.

As an alternative cosmology the narrative has remained within the accepted boundaries of physics and dating. This has continued to surprise me as the details developed. I have had no problem with the integration of the iconography, the odd events, and the obscure mythological phrasings. Other alternative cosmologies have had to resort to analogical and metaphorical readings of the past, or suggest improbable exploding bolides.

In the realm of orthodox cosmology, since 2007 we are seeing astrophysicists, atomic physicists, and archaeologists doing exactly that -- that is, suggesting

improbable exploding bolides in attempts to explain an event in 10,900 BC which caused the complete destruction of all the megafauna of the North American continent, plus an absolutely stupendous conflagration which vaporized everything organic and melted rocks. To explain these data, published papers have alternately posited an influx of meteors, aerially exploding iceballs from space, the propagation of flaming shockwaves from kinetic energy conversion in the air (even though there is no such thing), and the influx of atomic particles from a supernova. The establishment scientists are lost, and by their own admission they are grasping at straws.

But there is a straightforward answer. It lies in the predictable effects of repulsive electric force between planets when their plasmaspheres touch, that is, line up with each other. And this is what I will propose, even though you are very unlikely to be in the least familiar with this.

This is so because for some almost inexplicable reason, such forces and such interactions cannot be conceived of or even discussed within the realm of consensus science, especially in astrophysics, despite the fact that electric fields have been the stock of electrical engineering since the early 19th century. Ralph Juergens wrote in 1972:

"When the moment arrived for the inevitable encounter [between plasmaspheres], [the] sheaths would make contact. Unleashed electric fields would clash. Almost instantly, forces immeasurably greater than gravitation would be brought to bear on the charged bodies. Cosmic thunderbolts would flash between the bodies in an effort to equalize their electric potentials."

-- "Reconciling Celestial Mechanics and Velikovskian Catastrophism" (Pensee 1972)

The forces "immeasurably greater than gravitation" are real. They are electrically repulsive, billions on billions of times stronger than gravity, and they operate instantaneously (not "almost instantly"). The effects do not last long, for a charge of the opposite polarity would quickly be induced. After a delay (perhaps of minutes) the "cosmic thunderbolts" would follow -- a charge equalization. Since this is the movement of electrons and protons across space it will involve a travel time delay.

Juergens continues with:

"The list of unthinkableably disastrous effects that would result could go on and on. The point to be made, however, is that Worlds in Collision [Immanuel Velikovsky's book] -- at least in my opinion -- documents historical evidence to indicate that phenomena associated with spacecharge-sheath destruction were actually suffered and survived by peoples of antiquity."

Technically, we are talking about the following: The repulsive force between planets with like charges (or attractive force for unlike charges) is about 39 orders of magnitude greater than the attractive force due to gravity -- thus it is greater than gravity by a factor (a multiplier) of 10 to the 39th power -- 10 followed by 39 zeroes. Gravity drops off with the square of the separation distance. That is also true for point electric charges, but for charged surfaces the force drops off only as the simple inverse of the separation distance.

It is here taken for granted that all Solar System planets carry an extremely high negative charge -- at their surface (or in the near-space region). This has been known for Earth for a long time, but this awareness is only slowly creeping into the field of celestial mechanics. The planets keep electrically isolated from each other by means of their enclosing plasmasphere (what Juergens called a spacecharge-sheath above) which for Earth is approximately equal to the Earth's magnetosphere (thus with a radius generally 20 times the diameter of the Earth). For comets this is called the coma.

Note that in popular mainstream astrophysics the "plasmasphere" is frequently represented as consisting only of the Van Allen belts, an equatorial toroidal region of charged particles surrounding the Earth. The visible comas and tails of comets contradicts this, as does the analysis of the electrical properties of the space surrounding the Earth which is based on satellite measurements. See for example J. H. Piddington *Cosmic Electrodynamics* (1969) and others.

It is absolutely astounding that, in the 40 years since 1972, not one author among the writers in catastrophism has taken proper account of the repulsive forces Juergens first introduced into the literature.

I should point out also, that when Juergens writes "almost instantly forces immeasurable larger" and "cosmic thunderbolts would flash between the bodies," most readers fail to realize that there is a delay between these two separate actions. It seems to have been universally assumed that the thunderbolts result instantaneously from sensing a difference in potential, perhaps because one sentence follows directly on the other. The difference in potential which causes the "cosmic thunderbolt" does not exist until an apposite

charge is induced at one of the planets (which takes time) and the thunderbolt is further delayed by the time it takes for electrons and ions to travel from one planet to the other. And I should also point out that interplanetary lightning strikes are almost benign compared to the destructive interaction due to the *likeness* in potential -- the electric repulsive forces.

What is perhaps more astounding is the sheer lunacy of Velikovskian researchers, almost none of whom had the slightest background in physics or engineering, in insisting, for a span of thirty or forty years (as did Velikovsky), that somehow an interaction of magnetic fields between planets would account for changes in the Earth's orbit and Earth's axial inclination -- despite the fact that the two planets accused of interfering with Earth, Venus and Mars, have no magnetic field.

Much of this was due to Velikovsky's insistence on the primacy of magnetic fields while ignoring electric fields. Magnetic fields remained in the conceptual foreground as long as it was thought that the planetary interaction genuinely involved "collisions" or "near collisions." Everyone has played with magnets and understands their effectiveness at close distances. Almost no one has any feel for the enormous wallop packed by electric charges at great distances.

As I have discovered over and over again, the theorists (mostly "story tellers") of the catastrophic events first proposed by Velikovsky have seldom given much thought to the obvious: Venus could not have made a close approach to Earth without overall destruction of both planets.

The retellers of Velikovsky's narratives have held his book as Bible truth, for a number of reasons: in order to remain in his good graces, from a deficiency of imagination, and from the complete lack of knowledge of physics and electricity. There has been a whole generation of "researchers" who have never given a single thought to alternate scenarios which would generate the same descriptions from antiquity.

This is so like the established mainstream notions of today's science orthodoxy, which holds that things always were as they are today. No other condition can enter the imagination and certainly cannot present itself as fact. Yet all indications from the recent past are that things were different. Even very recently the arrangement of the Solar System differed markedly from today.

What is most important about the changes in the arrangement of the Solar System, many of which were catastrophic, is the cultural and psychological

reaction of the people of Earth to these events. The last 1000 years of the period when Saturn visually stood above the north horizon (4077 BC to 3147 BC) were beneficial and was remembered as the "Era of the Gods." Subsequent human history has been a singular effort to regain that Paradise. This period was followed by a series of adjustments in planetary orbits, some of which also had significant destructive effects on Earth and traumatic psychological effects on humans.

Humans changed after Paradise closed in 3147 BC. It was not just the rapid changes which we identify as civilization since 3147 BC, but also the acquisition, over the next three millennia, of subjective consciousness. The response to catastrophic events determined how we became fully human. To say it would have happened anyway does not hold up. There could have been any number of other outcomes. We could still be chipping flints. After all, we did that for more than a million years.

Disbelieving History

Of course, many will disbelieve and deride the concept of an alternative history, for it was not learned at their mother's knee. Most people have never actually tested the logic of the mainstream scenarios. The orthodoxy just "feels so right," because it is promulgated by a consensus of the established community of scientists, and especially by astronomers and historians. These two disciplines, it should be pointed out, operate without a physical object they can lay their hands on and are thus relegated to considering their subject of study mostly within the vacuum of the mind.

The physicality and history presented by the establishment is so here and now: it is everywhere and as accepted as religion (and with as little basis in fact). Any alternative to the conventional cosmology is thought to be impossible.

So, if you need to ask me: none of the information presented here has been published as scientific opinions in peer-reviewed professional journals. There are no clinical trials underway. My readers either understand and agree or they maintain an absolute silence. Over the last ten years I have only been faulted once -- for my claim that mountains existed before the flood of Noah.

Ralph Juergens, in 1972, in a brief evaluation of reasons for the "emotional outburst from the community of astronomers" (in particular) to the writings of Immanuel Velikovsky, wrote in summary about the scientific community:

"... I believe it is only fair to acknowledge an underlying and totally sincere scientific disbelief in the historical record."

Juergens here plainly translates *mythology* to *history*, as I do. Let's face the facts: the major portion of the historical record of mankind is our mythology. But this is not how most people understand mythology, including, or perhaps especially so, the scientific community.

To most people mythology is an exercise in didactic preachings on ethics and morals, akin to religious education. This represents an attitude initiated with the skepticism of Plato, and most recently reinforced by Joseph Campbell with his 1949 book *The Hero of a Thousand Faces*.

To Campbell myths are universal truths presented in symbolic language. But to everyone else myths are insubstantial and unreal. They have no relationship to anything in the physical world, and quoting the fanciful language of ancient sages doesn't prove anything about the real world of astronomers and physicists.

But it may be more than that. It is, in fact, difficult to understand the violent reaction to Velikovsky and his book as being solely based on a disbelief in history or in misconceptions about mythology. The reaction that was evoked primarily seemed to consist of predictable psychological defenses to perceived attacks. The astronomers had been bested by an outsider. [\[note 2\]](#)

The History of Objections

Efforts to debunk the cosmologies proposed by Immanuel Velikovsky (*Worlds in Collision* published in 1950), as well as David Talbott (*The Saturn Myth* of 1980), and work by Wallace Thornhill, Don Scott, and others have continued unabated for 60 years by those who need to convince themselves that they live in a stable Universe where things have always been as they are today.

Even recently, in 2012, more books are being published which are intended to show the terrifying influence of Velikovsky, such as Michael Gordin's *The Pseudoscience Wars and the Birth of the Modern Fringe*. Gordin equates Velikovsky's writing (as the publication blurb announces) with "other fringe doctrines, including creationism, parapsychology, and more."

Another book, Laird Scranton's *The Velikovsky Heresies: Worlds in Collision and Ancient Catastrophes Revisited*, supports Velikovsky, but with little effort at

an in-depth analysis. Most of the writing simply rehashes the favorable reviews of the 1960's.

Whereas Velikovsky's *Worlds in Collision* is listed under "Astronomy and Astrophysics" at Amazon.com, the above books are listed under "Religion and Spirituality" and "Christian Books and Bibles." As ever, the ability to influence religion is the greatest fear.

Today it is absolutely taboo to cite the work of Velikovsky in any scientific papers. This is observed with a religious zeal. Alfred de Gazia suggests it is a symptom of "collective neurosis" among astronomers and especially among archaeologists. Archaeology deals with actual objects but derived time periods. Velikovsky's later theory of displaced archaeological dates was very threatening. The violent rejection and debunking by professionals, whether they be astronomers, historians, or linguists, is perhaps the best certification of the very likely veracity of new ideas.

The AAAS and the Heretic

I should add an additional note on Velikovsky, since people tend to hold pre-formed opinions of him which are derived from rather scurrilous condemnations by the scientific community, in fact, almost entirely due to a symposium held by the *American Association for the Advancement of Science* in 1974 -- twenty four years after publication of Velikovsky's book *Worlds in Collision*.

The symposium was presented as the ultimate excommunication of Velikovsky in a trial of scientificisms performed by the AAAS. Velikovsky was on a panel with five scientists who were to consider his ideas. He was allowed to speak for 30 minutes, but was then followed by four anti-Velikovsky panelists who spoke against his ideas for two hours. The press loved it, extravagantly quoted Carl Sagan, and held Sagan as the winner.

At the time of the symposium, 24 years after his first publication, all too many predictions and corollaries formed by Velikovsky had been verified, based mainly on data gathered from the space program. Meanwhile Velikovsky had been giving standing-room-only lectures at universities and had become an embarrassment to astronomy.

James Hogan, in *Kicking the Sacred Cow* (2004), writes:

"Organized science had tried every tactic of distortion, evasion, misrepresentation, intimidation, vilification, and suppression of evidence to slay the monster that threatened the entire foundation of the collective uniformitarian world-view and mind-set.

Hogan is not exaggerating. As he mentions:

... after twenty years, interest in Velikovsky's theories was not only getting stronger with the apparent vindication from all quarters that was getting past the censorship and receiving coverage, but Velikovsky was no longer virtually alone. Scientists from many disciplines were beginning to organize in his defense, bringing the message to a new generation of readers and students."

But the AAAS symposium would bring all of that to an end. I won't go into details. You may readily find them. The end result was a disaster for Velikovsky's reputation.

The AAAS printed up the proceedings, but without allowing responses from Velikovsky. The papers of the 1974 AAAS conference appeared in Donald W. Goldsmith, *Scientists Confront Velikovsky* (1977).

The introduction by Isaac Asimov begins with, "What does one do with a heretic?" Indeed! Asimov's essay goes on to suggest that miracles by God are a more likely solution to the catastrophes recorded in the Bible: "the hypothesis that divine intervention caused the miracles."

In later recollections by Sagan in *Broca's Brain* (1979), however unbelievably, the television-personality astronomer accused Velikovsky of religious delusions: "Velikovsky attempts to rescue not only religion but also astrology."

Although presented as ridicule, that statement incorporates the hidden fear of the astronomers and scientists: that Velikovsky's book was an effort to tie science and astronomy to Bible fundamentalism -- just when the scientists had thought they had rescued humanity from such blundering behaviour and superstitions. As Robert McAulay wrote in "Extra-Scientific Dimensions of Science" (*Society for Interdisciplinary Studies (SIS) Review*, 1979):

"Velikovsky can be further comprehended. Of special significance is the fact that Velikovsky's catastrophism is seen by a number of eminent

scientists as raising once more the spectre of the arch-nemesis of modern science: Christian fundamentalism."

Of any number of analyses I have read of the controversy surrounding Velikovsky, only those that give voice to the idea that, inadvertently or not, Velikovsky was supplying evidence in support of Bible fundamentalism, made sense -- and this despite the fact that Velikovsky was an atheist and basically anti-religious. But nevertheless fundamentalists ideas were being read into his work.

"Perhaps the key factor is that Velikovsky's theories are regularly linked with literal interpretations of the Bible, and are thus viewed as being of one piece with 'fundamentalism,' rather than as an historical use of the Bible and other sources."

McAulay continues:

"Along these lines, the number of times that scientists refer to the religious implications of Velikovsky's work is striking."

What is happening here? I think we are seeing such violent reactions to Velikovsky because the real reason for being so upset with him was to be kept secret and hidden. It was a reaction to the invalidation of the life's work of the scientists. Let me quote Edward T. Hall who, in *Beyond Culture* (1976), sums up the reaction to telling people that their world is misconceived:

"When other people call attention to ... perceptual differences, suggesting that the world is not as one perceives it, these observations can be unsettling. To do so is to suggest that a person is incompetent, not properly motivated, ignorant, or even infantile."

This is exactly what Velikovsky's *Worlds in Collision* did to the astronomers of the USA. The unspoken implications were that they were incompetent and ignorant, and they were being told so by an outsider.

Many wrote also about the AAAS exercise in exorcism. Lynn Rose, who was present at the symposium, but not allowed to comment, produced articles in *Kronos*, "Just Plainly Wrong," in 1977 and 1978.

Charles Ginenthal spent nearly a decade researching *Carl Sagan and Immanuel Velikovsky* (1995), which took up Sagan's points of disagreement with

Velikovsky.

Alfred de Grazia authored, with Ralph Juergens and Livio Stecchini, *The Velikovsky Affair* (1966, 1978), including an update for the AAAS Symposium experiences. [\[note 3\]](#)

But all to no avail. There is no right and wrong in any of this, there is nothing to prove. My feeling is that the participation by Velikovsky in the symposium was a mistake which backfired by producing astoundingly bad press. It was the single largest mistake that Velikovsky and his supporters ever made, and perhaps the only one. Nothing will ever be proven through debate of theories.

There is no decisive proof to be had. The establishment owns a complete culture of empty fictions -- the Big Bang, Black Holes, Dark Matter, the Dark Ages of Greece, Sothic dating, and the pretentious paradigm of Absolute Gradualism. None of it is real, yet all of it is accepted as Gospel Truth. What the Velikovskians needed was marketing by professionals -- not some self-generated precepts of decisive proof of their theories. As de Grazia noted, in *Cosmic Heretics* (1984):

"The practice of advancing priorities is childish and the idea of proving a general cosmogony by a race of claims is ludicrous. There can be no crucial test or event."

Almost the complete series of objections presented by Wikipedia today is in error or is of no current import. While many of the initial celestial suppositions of Velikovsky have proven to be wrong, his corollaries have been correct, despite the fact that in the 1950s the astronomical establishment absolutely railed against them.

One outstanding and contrary element, from Wikipedia, however, is the following:

"He proposed that electromagnetic forces could be the cause of the movement of the planets, although such forces between astronomical bodies are essentially zero."

These forces are, in fact, zero, and will remain hidden and inactive within the shielding plasmaspheres of the planets. However, if the plasmaspheres of planets of nearly equal surface potentials intersect, then the forces are absolutely stupendous, so much so that even today many catastrophists shun all

mention of repulsive forces between planets, for, without a grounding in electric field theory, it simply cannot be imagined how these forces act or how large they could be. They are, in fact, billions on billions of times greater than gravitational forces. This was how Venus "collided" with Earth at a distance of 20,000,000 miles (32,200,000 km).

I would never have made any sense of any of this were it not for the elucidation provided by the writings of Ralph Juergens, Wal Thornhill, and Don Scott, which readily explain virtually all the planetary interactions in electrical terms. Additionally, the mythological aspects of my model developed out of writings and theories developed by David Talbott and Julian Jaynes, to whom I am also greatly indebted. [\[note 4\]](#)

Validation

After rereading (in 2010) David Talbott's *The Saturn Myth*, de Santillana and von Dechend's *Hamlet's Mill*, Dwardu Cardona's *God Star*, plus essays by Ev Cochrane and Alfred de Grazia, I am again astounded at the scope of information which has been brought to bear on the Saturnian Cosmology so far. There are over 2000 published articles directly concerned with these topics (and another 10,000 as news reports and uninformed drivel).

The Velikovskian studies have generated a number of magazines over the years, from 1972 through to today. Much of this is available as a [CDROM](#) of texts from past issues of *Pensee*, *Kronos*, *SIS Review*, *SIS Workshop*, *Horus*, *Aeon*, *Velikovskian*, and [Thoth](#).

Most of these magazines have gone under. Only the Society for Interdisciplinary Studies (SIS) publications have been added to the CDROM as updates. The CDROM is perpetually out of date, and much of the graphics are missing. Why all of this information is being hoarded is curious. It should be freely made available on the internet as the most important and intellectually liberating concepts to have been developed in the last 1000 years.

In this essay I am providing no more than cursory information on what has already been written about extensively by others. I have limited references to their work because there is no reason to weigh down a narrative with thousands of "op cit" and "ibid" footnotes -- which are too unrevealing and foster the decontextualization of primary sources.

Therefore, I did not include sources for most of the information in this text since all I am doing is remapping areas already explored by others and all of it is readily available, although scattered over many sites and books.

On the other hand, what is missing from the wide-ranging efforts of other researchers is a coherent analysis of Mesoamerican sources. I have added this. But it could not have been done without the prior exposition, by others, of the sequence of events as described in Egyptian, Mesopotamian, Indian, and Chinese sources. I am also indebted to earlier commentators and chronographers from Augustine to Ussher.

This site is thus in a large part a collation and synthesis of the efforts of many other people to recoup the past and a restatement of their work. Most of the information has been published previously, although I could not accept all of the writings. A portion of these prior resources is conjectural when based on unsound chronology, impractical when based on poorly understood physics, and pure fantasy when based on analogies.

And thus, in an attempt to put it all together, I am providing a narrative text of findings which I feel are acceptable and adding what I feel is missing: a sound chronology, realistic mechanics, and an extrapolation to events not recognized by many researchers.

I collected available material and put it in order, and, when it no longer made sense, started writing. Overall, the construction of a cohesive narrative resolved every significant outstanding "problem" which other researchers had run into, although at times it took months to find a solution -- however obvious it eventually turned out to be.

I should warn that the subject matter here is not any sort of accepted science narrative. It is a cosmology based on a set of reasonable starting postulates. The postulates, like those of any cosmology, are untestable. However, established theories of physics can be applied to these and this results in an amazing concordance of information in agreement with the initial postulates, historical recollections, and observable facts. It is this which confers validity on the explication pursued here. It suggests sensible answers to questions about the history of mankind, the Earth, the Solar System, and the Universe which have remained completely unanswered by the traditional "handed-down wisdom." The sum total of the conclusions derived here goes much further to constitute a cohesive "world-view" than traditional opinions and narratives have done.

This website will take Velikovsky's groundbreaking work, his book *Worlds in Collision* (1950), as a starting point for the development of a history of antiquity which answers more questions than any other alternative cosmology, and certainly more than the commonly accepted uniformitarian cosmology.

Many catastrophists still accept Velikovsky's ideas. Others, such as David Talbott, Wall Thornhill, and Dwardu Cardona of the Thunderbolts group, hold that nothing ever happened after the so-called Polar Configuration came apart in 3147 BC: not with Venus in 1500 BC or with Mars after 800 BC. Considering (as I do) the huge assembly of mythology which recounts these events, spread over three continents, with Mesoamerica detailing this with identifiable dates, I am astounded at the oversight. What else could be expected as the winding down of the cataclysm of 3147 BC with the removal of Saturn except further adjustments and interactions of the loosened planets?

I also came to the conclusion that some very large aspects of the past -- including some immense events -- had been overlooked by some of the most able researchers. I discovered and detailed the fall of the Absu in 2349 BC and the resurrection of Jupiter, and discovered the blazing of Venus and Mercury in 685 BC and the plasmoid delivered from Jupiter to the Sun (to the exact date and hour). Both the Velikovskians and the Thunderbolts people have remained completely unaware of these particular events -- and not that both could not have been discovered among available texts. You will not have to be able to read dead languages to find the information.

This cosmology can explain everything from the geology of the Earth to the astrophysics of the Solar System. Other people have expanded on separate facets extensively. My first concern was to provide a chronology and a mechanics (see the Appendixes A and B). The connecting narrative came later. In this narrative my main interest has been to trace the origins of contemporary cultural practices. Of greatest importance, from my point of view, is that a Saturnian cosmology provides an explanation of the actions and thoughts of our ancestors and insight into our contemporary behavior and thinking.

Let me state at the outset that I have no particular axe to grind, no politics to promote, this is not a "creationist's young earth" thesis, I do not hold to extraterrestrial interventions, I have no religious or theistic proposals to make, nor do I put stock in the "Elohim" of the Old Testament. I'll remain within accepted physics -- I will not propose new solutions to gravity or offer new

"forces" for you to consider, or have planets arbitrarily leave their orbits. And I'll use accepted dates and dating.

I started this essay in late 2001. I never meant to write as much as I did, but people asked, "So what came before 4077 BC?" That alone resulted in nine additional chapters. And then there were minor questions on items I had never paid much attention to, like, "Why was Sirius red in antiquity?" and "What about the two latitudes of Babylon?" This last has been under discussion by astronomers since AD 100. But the solution is simple.

Mesoamerica

And then, as noted directly below, I started to look at Mesoamerica, which resulted in seven more chapters. So, after completing most of the narrative described in these pages in March of 2006, I came across the *Books of the Chilam Balam Of Chumayel* of the Yucatan Maya which were written shortly after the invasion by the Spanish. These were an attempt to secretly keep ancient myths and tales alive.

I was astounded to find among the texts a step-by-step rendition of the course of the "creation of the world" dating back to long before 3147 BC, followed by an accounting of other catastrophic events. The events are described in the same detail as the parallel Egyptian and Mesopotamian "legends." The *Chilam Balam* also provided dates which turned out to be congruent with what had already been extracted from sources in the Eastern Mediterranean by others. I started to include references to the *Chilam Balam* within the main text.

I followed up on ideas by Vincent H. Malmstrom, writing in *Cycles of the Sun, Mysteries of the Moon* (1997), and Anthony Aveni in *Skywatchers of Ancient Mexico* (1980), who both claim that the Mesoamerican ceremonial sites are aligned to the setting of the solstitial summer Sun. They are not.

I have much better data for longitude and latitude available today than Malmstrom and Aveni had, and found their conclusions to be completely wrong. What I found instead, unnoticed by Malmstrom and Aveni, were alignments to the setting of the zenithal Sun -- the day the sun exactly overpasses a particular site, 90 degrees up in the sky. It became clear that the location of every site in Mesoamerica was selected not only so that the Sun would pass directly overhead (which happens two days each year anyway), but sites were specifically selected to have the Sun set at a mountain or in a volcano on the western or northwestern

horizon. The mountains were selected to correspond to an alignment within 1/3 degree of this.

I thus looked closely at 13 early and well-established ceremonial sites in the Olmec region and the Valley of Mexico (plus two sites elsewhere), and found that they shared some 70 alignments to mountains or volcanos -- each for sunsets primarily on six calendar dates only. These are, in fact, the calendar dates associated with the four major catastrophes identified for the Eastern Mediterranean.

After considering sources from the Eastern Mediterranean, I was able to tie the calendar dates to the catastrophic events of 2349 BC (September 8), 1492 BC (April 19), 747 BC (February 28), and 685 BC (three dates in June and July).

The dates turn out to represent the "flood of Noah" in 2349 BC (as the culmination of the Pleiades), the Earth shock of 1492 BC (recorded in Exodus), the shock of 747 BC (the start of the Babylonian "Era of Nabonassar" and the Roman calendar), plus a distribution of three dates which can be assigned to forty days of a solar nova event in June and July of 685 BC, corresponding to the Phaethon legend. [\[note 5\]](#)

What is interesting here is that the equivalent (seasonal) calendar dates which were found are likely to be very correct, even if the year these events are assigned to is not. To have all the multiple alignments of 13 sites consistently show up on 6 days only is well beyond random. Alignments for matching calendar dates vary only by a fraction of a degree between calculated and observed values from site to site. Among the 13 sites I looked at, there were 25 alignments assigned to the date of September 8th, 16 to April 19th, 10 to February 28th, and 22 to three dates in July. In all there were some 70 identical alignments used by 13 sites, plus 10 alignments for the setting Sun after an overhead (zenithal) passage.

Later chapters will deal with these Mesoamerican sources -- the Maya calendar, the ending of the "First Creation" in 8347 BC, the history of the world since the ending of the "Second Creation" of 3147 BC, the event known as the end of the "Third Creation" of 2349 BC, the cosmological crisis of 685 BC, the search for the "day of Kan," and an exposition of the *Popol Vuh*.

Within the text of the *Chilam Balam* I have identified the trees of the four directions, the place of reeds, the crossroads or rivers in the sky, the turtle first seen long ago, the three hearthstones in the sky, and a number of additional

phenomena. Based on Olmec and later Maya iconography, I have managed to identify the plumed God with the crocodile body as well as the double-headed dragon with the Sun and Venus coming out of its two mouths, and the sloped-walled canyon for ballgames. This seems like the material of fantasies, but it is exactly what constitutes the religious symbols of Mesoamerica.

Special thanks to G Van Aacken for pointing out the electric force dropoff.

Endnotes

Note 1 --

The opening quotation ("A large planet ...") is lifted from a later chapter in this text.

The quotation by Cardona is from Alfred de Grazia's *Cosmic Heretics* (1983) as the content of a letter by Cardona to Earl Milton, who worked with de Grazia. I originally used a date for the Cardona quotation of 1982, since de Grazia's text covers up to 1983. De Grazia has no endnotes to clear up his sources. In 2010 I changed the date of the Cardona quote to 1978, which is what de Grazia seems to suggest in his text. The concept of Saturn at the North Pole had been under public discussion for about five years at that time.

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Note 2 --

"The emotional outburst from the community of astronomers that so blackened the name Velikovsky and so successfully, if only temporarily, discredited Worlds in Collision, has been laid to many causes, from the psychological and the political to simple resentment against invasion of the field by an outsider."

From Ralph E. Juergens "Reconciling Celestial Mechanics and Velikovskian Catastrophism" (*Pensee*, 1972). Two years later the American Association for the Advancement of Science (the AAAS) organized their famed symposium on Velikovsky.

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Note 3 --

Alfred de Grazia, in *Cosmic Heretics* (1983), sources Shane Mage's book *Velikovsky and His Critics* (1978), with the following note [abbreviations expanded]:

"Shane Mage, in appraising the speeches against Velikovsky, uncovered in them several important concessions that had been apparently achieved over the years. First, the book Scientists Confront Velikovsky, 'disavows and repudiated the entire Scientific polemic of the 1950's and 60's both implicitly and explicitly.'"

"Next, both the sponsor, Goldsmith, and Mulholland assert that Velikovsky's ideas and arguments are not un- nor anti-scientific, whatever the press and then the scientific community presumed to draw from the event. Furthermore, the legitimacy of cosmic catastrophic hypotheses in science was acknowledged both by Sagan and Mulholland, but the specific hypotheses of Velikovsky were attacked (and obviously the scientists are in confusion as to how they can work historically and empirically with the hypotheses that they admit.)"

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Note 4 --

Ralph Juergens's essay [\["Reconciling Celestial Mechanics and Velikovskian Catastrophism"\]](#) does one of the best jobs introducing interplanetary plasma.

Much more important are two other essays by Juergens which apply plasma theories to conditions within the Solar System: [\["Of The Moon and Mars Part I - The Origins Of The Lunar Sinuous Rilles"\]](#) and [\["Of The Moon and Mars part II - Searching For The Scars Of Battle"\]](#), both published in Pensee in 1974.

All discussions of planetary interactions presented at this website ("Recovering the Lost World") are extensions of the basic electrical concepts originated with these two papers. Once you figure out what they say, you will know everything there is to know about planet to planet interactions.

Other relevant articles deal mainly with the Sun, and are found at [\[http://kronos-press.com/juergens/index.htm\]](http://kronos-press.com/juergens/index.htm).

Two recent discussions on plasma by [\[James Hogan\]](#) can be found here.

See also the following collection of websites:

- Wal Thornhill's website at [<http://www.holoscience.com/>].
- Don Scott's explanation of plasma theories at [<http://www.electric-cosmos.org/indexOLD.htm>] and his book *The Electric Sky* (2006).
- The work of David Talbott (with Wallace Thornhill and others), including the book *Thunderbolts of the Gods* (2005), at [<http://www.thunderbolts.info>]. A second book by the same authors, *The Electric Universe* (2007), is more specific and does a much better job of presenting galactic, solar, and planetary plasma.
- The "Thunderbolts" site (above) includes an amazing series of daily images and comments, mostly dealing with outer space, but at times including some mythological themes. A brief rundown of Talbott's "Saturn Theory" is included among essays. There is also a forum with discussion ranging from the well-informed to the inane and mostly concerned with contemporary astronomy from the standpoint of interstellar plasma.

Specific to plasma theory are the following:

- The website of the astronomer Halton Arp at [<http://www.haltonarp.com/>].
- Material by Anthony Peratt of Experimental Programs at Los Alamos National Laboratory. Find it at [<http://plasmauniverse.info>]

Peratt is one of the world's leading pioneers in plasma physics and plasma cosmology. Peratt's papers on the petroglyphs and the south polar plasma column are located at the site above, but hard to ferret out.

Look under NearEarth.html for "A. L. Peratt, *Characteristics for the Occurrence of a High-Current, Z-Pinch Aurora as Recorded in Antiquity*" and "A.L. Peratt, J. McGovern, A.H. Qöyawayma, M.A. Van der Sluijs, and M.G. Peratt, *Characteristics for the Occurrence of a High-Current, Z-Pinch Aurora as Recorded in Antiquity, Part II: Directionality and Source.*"

- An extensive collection on plasma theory, developed and maintained as a Wiki site by Ian Tresman of SIS, at [<http://www.plasma-universe.com>].
- The most readable synopsis of the elements of plasma theory is the website, [<http://www.plasmacosmology.net>] -- a very extensive site, written in a summary, easy-to-read style. The descriptions include some catastrophism and mythology.

- Another website equal in scope and general interest is [\[http://www.plasmasources.com\]](http://www.plasmasources.com) -- run by David Smith, AU.
- A very readable overview which generally cuts across the handed-down "science" to zero in on essentials: [\[http://sites.google.com/site/cosmologyquest/default\]](http://sites.google.com/site/cosmologyquest/default) by Michael Suede.

There are more links relevant to prior research in the next chapter, and in the Appendix "List of Links." See also the Appendix "List of Books." Plasma is a controversial subject with Wikipedia, since it may be enlisted to present evidence against the Big Bang theory. Wikipedia articles dealing with plasma and related topics are therefore often edited in favor of handed-down science. The reader should be aware of this bias. As an antidote I recommend two books: Eric Lerner, *The Big Bang Never Happened* (1991), and Hilton Ratcliffe, *The Virtue of Heresy: Confessions of a Dissident Astronomer* (2007).

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Note 5 --

The culmination of a star (the Pleiades mentioned in the text) is the date when it reaches the highest point in the sky. This would always be directly south, and at midnight. The Pleiades culminated on the third night after the fall equinox in 2349 BC, which occurred 15 days earlier before 685 BC. Precession of the equinox does not apply to the era before 747 BC. The concept of the "third night" (actually two days and a night) is of importance in later religions. All the calendar dates are "Gregorian equivalent" dates, apportioned over the real-time calendar days for shorter years. These conditions will be detailed in later chapters.

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Chapter 2: A Synopsis.

\$Revision: 42.9 \$ (syn.php)

Contents of this chapter: [\[Missing Evidence\]](#) [\[A Synopsis\]](#) [\[New Findings\]](#)
[\[Contents and Resources\]](#) [\[Endnotes\]](#)

Before launching into a lengthy history, let me offer in brief form ("a synopsis") the story of what I have found, both in confirmation of the research of others and filling in what they have missed. But first, some caveats and opinions. In the next chapter I'll describe the research of David Talbott and the contribution by Wal Thornhill which have led to the theory of the polar location of Saturn.

Missing Evidence

Before you become flush with indignation at the preposterous claims I will be making in the following paragraphs, consider that I cannot offer the evidence at the same time as the capsule descriptions. Your indulgence is therefore requested. The evidence follows immediately in a terse presentation of some 700,000 words (readable as one chapter a night for a month). Only two jumps are made in the sequence of logical connectivity: an overall base chronology is developed in Appendix A, and most of the detailed plans of celestial interactions are found in Appendix B. That leaves, as the main course, a narrative of the historical events, often separated by many hundreds of years, but more or less in historical order. This note will sooth your temper, I hope.

You might also take stock of the fact that what is presented here has close parallels in the work of a half dozen other writers, all engaged in emphasizing the catastrophic prehistory of Earth, each of which lays claim to being solely correct (as I do also). I am not including fringe authors like Zecharia Sitchin, Eric von Daniken, Victor Clube and Bill Napier, or 2012 prophets, pyramidiot, and UFO buffs, all of which have gone over the edge. [\[note 1\]](#)

Nor am I at all given to causes attributed to comets and meteors crashing into Earth, especially after looking closely at the Tunguska event of 1908, and the claim of bolides over North America in 10,900 BC as presented by Richard

Firestone's group. Electric field interactions can explain all of the unexplainable much easier and more predictably. [\[note 2\]](#)

If I still have your attention at this point, let me rouse your ire once more by proposing that, for example, the Chicxulub crater in the Yucatan is not the mark of the largest bolide ever intercepted by Earth, as is commonly thought. Rather, it is the result of a lightning bolt 110 miles (177 km) in diameter, and not the crater of an object falling from the sky. Yes, lightning bolts can travel millions of miles between planets. Yes, we lost the dinosaurs over the next 10 million years, but the large-scale extinction does not at all conform to the consequences of a fallen rock, as is certainly recognized by the establishment. More on this in a later chapter.

A Synopsis

The chapters of this site will propose that the biology of our planet, our culture, our psychology, and our very existence, are the result of a series of incidents arising from the interaction between Earth and other planets within the Solar System, most notably Saturn.

The biology of Earth is such a complete accident and so utterly unlikely that it will not have ever been duplicated anywhere, at any time, among the billions of other star systems. But here on Earth, all of it, especially the rise of complex species since the Cambrian Period, 560 million years ago, can be attributed to a series of cataclysmic plasma strikes by Saturn, each of a very long duration: biologists claim 10,000 years for the extinction events; my original estimate was 15,000 years. [\[note 3\]](#)

As hominids, we survived the last externally induced extinction event which gave rise to eight competing sub-species over the course of the last three million years. Our only contribution to our distinction from other animals was the invention, 40,000 years ago, of language and its subsequent cultural transmission. That set the stage for further development of our "humanity," much later on and much closer to our time: subjective consciousness.

It all started very long ago. At one time, and from its genesis, Earth was a planet in orbit around Saturn, a brown dwarf star. Toward the end of the Precambrian (600 million years ago), the Saturnian System intersected with the Solar System. Saturn swept around the Sun, and back into deep space, to return at regular 26- to 27-million-year intervals. Over the course of time, some of the satellites

(planets) of Saturn were wrenched from their orbits around Saturn to end up revolving around the Sun instead. The Earth likely became a Solar System planet at the end of the Permian, 250 million years ago.

From 600 million years ago Saturn kept entering the Solar System regularly to disturb its lost satellites now circling the Sun. At about 3 million years ago Saturn likely had a run-in with Jupiter, a Solar System planet at that time orbiting the Sun at a distance probably somewhat less than the Earth's orbit today. The orbital period of Saturn was significantly reduced as a result.

During this last 3 million year period Saturn started scavenging its lost satellites, and perhaps Solar System planets, all in orbits close to the Sun. The possibility of a "captured" planet again orbiting Saturn at its equator is virtually nil. Instead, the scavenged planets ended up in suprapolar and subpolar locations, the only locations which seemed to be dynamically stable.

[September 2013] Because Saturn had come in from outside of the Solar System, and most likely was a star originally, it would have been at a very high positive charge level -- distinct from the Solar System planets. Solar System planets would have been attracted to Saturn when Saturn entered the Solar System -- rather than be repelled as would be the case of two planets with nearly equal values of charge.

Saturn, with its stack of captured planets, was seen by humans (Homo Erectus) and recorded in the shapes of artifacts in the Paleolithic of about two million years ago, and (by Homo Sapiens) as carved images in the Upper Paleolithic, from 30,000 BC, and by the hundreds of millions during the early Neolithic, 10000 to 3000 BC, when the stack of planets was much more frequently seen.

At about 10,900 BC, the Earth (at that time a planet of the Sun) made an electric field contact with Saturn, causing 1500 years of "darkness" (shadow) on Earth. The period of darkness is recognized by many of the world's creation myths, and was recorded in the illustrated graphic books of Mesoamerica, references to which are made in Colonial-period documents. Climatologically the period is identified today as the Younger Dryas, when for some 1500 years Earth got as cold as it had ever been.

Over the next 7000 years the orbit of Earth, apparently equal to the orbit of Saturn at that time, but below Saturn, progressively moved laterally to have the Earth's orbital path eventually travel below the center of Saturn. Thus, between 10,900 BC and 3147 BC, Earth was part of a strange configuration of stacked

planets, a condition which provided long summers and a mild climate in the northern hemisphere. Planets, dominated by the giant form of Saturn, stood above the north horizon and close to Earth (but measured in millions of miles) and were taken by humans to be the Gods who supported them and for whose benefit they labored at agriculture and conducted trade.

Initially, during a 1500-year period after 10,900 BC, when the cold of the Younger Dryas set in, and long before Saturn was clearly seen, three fiercely lighted ball plasmoids were seen far south of Earth, below the South Pole. Between about 10,900 BC and 8347 BC, these connected to Saturn in the north via strands of brilliant arcs of electrons. Forms of various shapes ran south over these electron lines, traveling toward the three plasmoids. The moving shapes were taken to be dead animals and humans.

The objects in the south sky became the basis for all of the original religions (and a good deal of mythology) throughout the world, for they persisted in showing nightly and seasonally over the course of nearly 7000 years -- although only for three periods of hundreds or a few thousand years. For the people of Mesoamerica the year 8347 BC, when the initial set of plasmoids extinguished after 2500 years, was the end of their first tally of years which accounted for the "first creation."

We know only a little about these ball plasmoids from obscure mythological references. And we would still not know very much, if it had not been for an investigation undertaken by a team led by Anthony Peratt (of Los Alamos National Labs) of some 4,000,000 petroglyphs worldwide, carved high up on mountain sides, facing in all directions but always with a clear view toward the south. That study, published in the journal *IEEE Transactions on Plasma Science* in 2003, was an absolutely astounding revelation. More on that in a later chapter.

In 4077 BC Saturn dropped its coma. This had been the "chaos before creation" which had lasted some 6000 years. It had obscured Saturn and its companion satellites. Saturn went nova, it switched to arc mode. In a mass expulsion Saturn produced its rings and a new satellite, Venus (and perhaps another), and Saturn lit up more brilliantly than the Sun. To the humans of Earth, who had not clearly seen the real Sun for thousands of years because of the shadow of the Younger Dryas followed by the obscurity of the enclosing plasmasphere of Saturn, this was the start of creation, the start of time, and the first showing of "the land" and its resident Gods, the satellites of Saturn. Saturn was universally called "the sun" throughout the world.

In Central America the *Popol Vuh*, written circa AD 1600 from much older records, recounts:

"Like a man was the sun when it showed itself. It showed itself when it was born and remained fixed in the sky like a mirror. Certainly it was not the same sun which we see, it is said in their old tales."

In arc mode Saturn would have lost its glow mode coma, but it apparently retained a plasma stream connection to Earth. The Sun (the real Sun) lighted part of the edge of Saturn in a crescent which revolved around Saturn on a daily basis, visually caused by the daily rotation of Earth in its location below Saturn.

This stack of planets consisted, from top to bottom, of Uranus (on its side as today) and Neptune, both hidden by Saturn below them (known in Mesoamerica from earlier times). I suspect that these three planets had been seen together for perhaps 2,000,000 years -- initially by Homo Erectus. Below Saturn the following were located from top to bottom: Mercury (joined the group in about 14,000 BC), Mars (resident probably since at least 30,000 BC or earlier), and Earth (joined the group after 10,900 BC).

In 3147 BC this configuration of standing planets broke apart, with the three large planets moving far away from the Sun, and Earth and Venus released to overlapping "inner" orbits. The breakup produced a stupendous flood of the waters which had been held at the south polar region due to the gravitational attraction of Saturn for some 7000 years. The water held at the South Pole was due to the lifting up of the Earth's crust in the Arctic, and the sinking toward the Earth's interior in Antarctica.

Flood stories are ubiquitous, found in over 500 independent "myths" -- all with the same coherent details. The survivors included people far inland, those living already on mountain slopes, and apparently the people of the Nile delta and Northern Mesopotamia. The only recourse to a livelihood for many of the survivors was agriculture, which soon sprang up (simultaneously) in six unconnected regions of Earth.

The breakup was caused by Jupiter, which had circled the Sun as an inner planet up to that time. Jupiter was subsequently seen receding in the skies, surrounded by a coma visually three times larger than the diameter of the Moon today. Below the south pole of Jupiter extended a gigantic plasma outpouring, making it look like Jupiter was resting on a mountain (it was green initially). Above the planet were much smaller horn-like extensions. The whole of this looked like a

person in a mantle, but was also identified as "the Bull of Heaven." Jupiter was taken as the new God, called "the younger." Jupiter retained its massive lower outpouring until it entered the asteroid belt in about 2860 BC, after which the coma reduced in size and changed its shape.

After 3070 BC Mars and Mercury, which had remained in their positions below Saturn, were released when Saturn entered the asteroid belt. The two planets crossed Earth's orbit for about 300 years, overriding the Earth's orbit close to Earth on 30-year (or 15-year) average intervals. At those times Mars was at times brought into plasma contact with Earth, looking like a squat mountain which circled the Earth -- the visual effect of the rotation of the Earth. With Saturn and Jupiter both disappearing into the ecliptic, Mars was held to be the God in charge of Earth, Horus of the Egyptians.

This lasted to about 2750 BC or 2700 BC, after which the regular visits of Mars ended, its elliptical orbit perhaps rotating away from Earth (in apsidal precession). In the next century people throughout the world start building pyramids in imitation of the disappeared mountain of Mars, all within a hundred years of each other -- in Egypt, Mesopotamia, England, China, in the Andes of South America, and in many other locations, such as Greece and the Balkans (as has been discovered in recent years, although not validated).

We have recorded histories of these celestial events, especially in Mesoamerica. There are accurate descriptions of the rings and the number of satellites of Saturn, the cloud bands and satellites of Jupiter, and the scarred surface and satellites of Mars, all dating from antiquity and spanning cultures worldwide. The Egyptians produced schematic images of the original configuration of Saturn and the satellite planets below, and have a record of early close passes by Mars. Mesopotamians also produced images of planets, graphically showing, for example, all the satellites of Jupiter. The Maya (from Olmec sources) have an undated record of the planetary movements from long before 3147 BC, and a dated record of later events which matches what can be gleaned from Eastern Mediterranean sources. The Aztecs produced graphic images of these planets, although anthropomorphized to gods and produced very late. South Sea islanders have similar records of the rings of Saturn. India has similar recollections of these events extending over millions of lines of poetry. The Quiche Maya *Popol Vuh* and pages of the *Maya Books of the Chilam Balam* makes casual references to the period of 13,000 years ago (probably 10,900 BC). One page of the *Chilam Balam* records seven appearances of the Saturnian

planets as far back as perhaps 40,000 years (which can be collated with atmospheric Carbon-14 records dating from 50,000 bp).

Over the next 2500 years (3147 BC to 685 BC) the inner planets interfere with Earth at intervals, although very infrequently. There were four major additional incidents. The damage often was localized in latitude, although, for example, a continuous lightning strike might have encircled the globe in circa 1492 BC and certainly repeatedly in the 8th and 7th century BC.

As recalled by nearly all peoples on all the continents, the most terrifying incident, however, happened in 2349 BC when an alignment with Venus (20,000,000 miles away at that time -- 32,200,000 km) produced an Earth shock in the northern hemisphere, tilting the Earth's axis away from the Sun temporarily, and tilting up the equatorial rings of the Earth (Earth at one time had equatorial rings). This was followed perhaps six hours later by the arrival of a massive disconnected plasmoid lightning bolt from Venus which hit the rings almost broadside, followed somewhat later by lesser bolts, recorded in Mesoamerica and China. [\[note 4\]](#)

The electric contact with Venus turned the equatorial rings blood red and caused the destruction of the rings. Lightning bolts arced up to the rings from the Earth's ionosphere layers and the lower equatorial plasma toroid (the Van Allen belt). The sky bled for three days, and only a single ring remained. Dust continued to rain down for the next 4000 years (until AD 1600). The cleared southern skies, previously obscured by the Earth's rings, revealed a multitude of stars for the first time, most notably the Pleiades, located directly south at midnight two nights after the equinox.

The equatorial plasma toroid would have also arced to the surface of Earth, producing months of torrential rains. To humanity, the "sea" of the Earth's equatorial rings in the south sky (the Absu) had collapsed to Earth, and the event was almost everywhere understood as a second flood of stupendous proportion. The Bible recalls this event as the flood of Noah. But to most peoples the blood seen in the sky suggested the wholesale slaughter of humanity, and any number of raging goddesses or dragons were assigned to this event in mythology worldwide -- Kali, Tiamat, Anath, Sekhmet, Hathor, and much later, Beowulf's Grendel.

After two and a half days, Jupiter appeared again with its previous giant coma and lower mantle (again understood as a mountain), as if risen from the dead. In fact, the rise of the equatorial (in the sky) made it look as if Jupiter rose up out

of the cave previously seen as the shadow of Earth on the rings. The cave-shaped shadow opened up as the Earth regained its normal inclination, and Jupiter rose out of this to a location above it.

Jupiter had stopped the dragon from killing additional humans. The event itself remains commemorated as the "Day of the Dead," and is almost universally associated with the culmination of the Pleiades in autumn. Echos of the fall of the rings and the surrounding circumstances continue to resound in mythology and, to this day, in the theologies and practices of many religions -- especially the resurrection of Jupiter on the third day. Many nations also date the start of all sensible history (and their calendars) from this event. Strangely, this event is simply not noted by any of the catastrophists. Even Velikovsky remained unaware of it.

Eight hundred years later, in 1492 BC, Venus again made an electric contact with Earth, causing a crushing repulsive blow in the east Central Pacific. The Pacific islands were wiped clean of any trace of humans, except for the petroglyphs carved on every island thousands of years earlier. Coastal South America and Central America were inundated with water, leaving sea-water traces in lakes high up in the Andes, and possibly causing a sudden rise in the coastal range of the Andes by thousands of feet. The blow was followed by an electric arc traveling through the Pacific, the Indian Ocean, and part of India -- following a path of increasingly higher latitude into the Mediterranean as the Earth's axis angled back toward the Sun. Moses made his escape from Egypt during the turmoil. The event is recalled in mythology as the attack of the monster Typhon who is struck down by Zeus. The major result of the contact was a 30 percent increase in the orbit of the Earth -- the year went from 273 days to 360 days. Venus probably came no closer than 10,000,000 miles (16,000,000 km) in this instance.

Something else was initiated at this time. The movement of tribes away from devastated areas and failing climates into new regions happened after 1492 BC. Tribes of Central Asia entered India, Anatolia, and Greece. Tribes from Asia Minor settled in Italy (as well as at later dates also). People everywhere met strangers, and had to cope with new living conditions. This resulted in an expansion of our imagination as a way of coping with these changes -- the development of *subjective consciousness*. Before this time there was little need to deal with change. The people of Egypt and Mesopotamia (for whom we have records) had remained stagnant in the way of life of their forebears for thousands upon thousands of years. The development of *subjective*

consciousness (as opposed to mere consciousness) was a cultural innovation and the major change which made us human. Subjective consciousness came to be taught to children by parents, exactly like language is taught. The teaching of subjective consciousness (like the teaching of language) can be readily observed today. [\[note 5\]](#)

Another 700 years later (806 BC to 687 BC) Mars closed in on Earth with repeated electric arc contacts at 15-year intervals, a major Earth shock in 747 BC, and a minor shock in 686 BC (this last caused by Mercury). Earlier, Mars had also interfered with Earth in similar fashion at the close of the Early Bronze Age, 1935 BC to circa 1700 BC, which includes the destruction of Sodom and Gomorrah.

Mars came close, perhaps to within 40,000 miles (64,000 km) of Earth. The interactions, as a result, were completely different from the long distance shocks due to Venus. The destructions of the 8th and 7th century BC were spread over long stretches from Central Asia to the Western Mediterranean, and through to Mexico and Southern United States. From the Persian plateau to Greece, in swaths measuring more than 600 miles (966 km) from end to end, hilltop citadels were destroyed by quake-like convulsions much more extensive than any earthquake, and by massive lightning strikes.

Cities and citadels were buried under yards of carbonized material mixed with soil. The soil and burned forests were dropped whenever the traveling lightning bolt paused at a hilltop. These simultaneous destructions have been noted in the archaeological record, and include the events of the 8th and 7th century as well as after 1935 BC.

De Grazia estimates that only 2.5 percent of the original population of 200 million of the Mediterranean region survived. Bolsena (Volsinii), a city in Italy, was obliterated by a lightning bolt measuring more than 5 miles (8 km) in diameter -- if we are to believe Pliny, who presents this from older Etruscan sources. The circular lake at Bolsena is larger than any volcanic caldera. Mars became the next sky God and set a tone for human conduct -- lasting to this day.



[Image: Bolsena, Italy; after Wikimedia.com.]

The destructions of the 8th and 7th century BC obliterated the coastal areas of Greece and coastal Anatolia. The remnant population turned to raiding and became the pirates celebrated in the Iliad and as the Egyptian "People of the Sea." The Iliad reveals that these were no sailors. Warfare and the extraction of tribute also became a way of life for the Assyrians, who plundered from Elam to Egypt.

The change in humanity, however, which suddenly brought people up to our current expectations, was an event which happened early in the seventh century BC. In 685 BC Venus and Mercury blazed as bright as the Sun and were seen in the daytime skies with the Sun for forty days starting on June 15. The event was probably an extraordinary plasma outpouring by the Sun, brought on by the sudden relocation of Mercury to within the orbit of Venus in the previous year.

In July of 685 BC (actually the astronomical year -685, corrected from 680 BC Julian in Eastern Mediterranean chronology), Jupiter also erupted with a coma in response to the Sun's increased output of plasma, and on July 14 sent a return lightning stroke, a plasmoid bolt, headed for the Sun. It arrived at the Sun on July 25th. The plasmoid, which passed by Earth at a distance of 30,000,000 miles (48,000,000 km), was seen in foreshortened form by Asia and Europe, and is depicted in sculptures and illustrations and even on coins. The Mediterranean nations thought that Venus (or Mercury) was struck -- the bolt from Zeus which toppled Phaethon from the Sun's chariot. Mesoamerica saw the plasmoid at full length as it passed by in the daytime, and depicted it correspondingly differently. Their understanding was that Mars was struck. It was called "the bundle of flame" among the Maya. To China this was the celestial dragon, the traditional form of which matches the structure of a plasmoid lightning bolt.

[\[note 6\]](#)



*[Image: Dorje, model plasmoid;
after Taramandala.org.]*

As experienced by Earth, the after-effect of the 40 days of extreme solar activity was the relocation of the polar axis from Ursa Major to near Ursa Minor, and the delay of spring by some 15 days (in effect changing the inclination of the polar axis which is equivalent to rotating the dome of the stars). A new equinox was suddenly established. The aphelion of the Earth's orbit (the location furthest from the Sun) changed, and 120 years of interference by Mars and Mercury came to a sudden halt. It appeared to many that Jupiter, the historical supreme God of antiquity, had again saved mankind from destructions. The change in aphelion had resulted in a cessation of further interactions with Mars. In 670 BC the Earth's orbit became nearly circular (for unknown reasons), and the Earth was in fact completely removed from any future interference by any of the inner planets.

Within 100 years of this event, we see the simultaneous rise of philosophical studies, much as we understand them today, in China, India, Mesopotamia, Anatolia, North Africa, and Rome -- well before there was any cultural transmission between the more distant regions in this list. It had appeared to many as if a far greater power, beyond the dome of the stars, had moved the stars and planets and restarted the Universe. For many of the philosophers, the causes for natural phenomena were now sought elsewhere than in the whims of the old planetary gods.

With the realization of the existence of a power beyond the planets and stars, we also see the sudden rise of all the modern religions within the span of 100 years -- Taoism and Confucianism in China, Jainism, and Buddhism in India (with its subsequent influence on Hinduism), and Zoroastrianism (Mazdaism) in Persia with its influence on Judaism, Mithraism, Christianity, and eventually on Islam. Similar changes seem to be attested to in Mesoamerica, probably dating from after 600 BC.

Could all this really have happened? Religions have attempted to explain all of it, initially as narrations of the observed events, eventually as metaphors of spiritual states. Science, on the other hand, has spent the last two hundred years denying that anything at all ever happened. But a look at the histories (what we call myths) of people from regions as diverse as China, Mesopotamia, and Mesoamerica will reveal that they are in complete agreement with each other. Add to these the various myths of the people of India, South America, Africa, Greece, and thousands of others, and a consistent picture of the past emerges, which is not what science tells us.

Or fly over the regions of, for example, the Western United States, and you will soon be convinced that the waves of hills, the conical dumps of windborne soil, the distorted folded mountains, and the widely varied landscape cannot possibly be the result of eons of slow movement and metamorphosis of the Earth's crust. The surface of Earth appears to have been battered and wracked convulsively, and recently.

Except for geology, which I will not really touch on, the remaining chapters will fill in the details and broaden the scope of the four major events. The four events are:

- The end of the "Age of the Gods" and the worldwide flood in 3147 BC;
- the fall of the Absu (known as the "flood of Noah"), the blood in the sky, the resurrection of Jupiter, and the first appearance of the Pleiades in 2349 BC;
- the defeat of Typhon and the Exodus of Moses from Egypt in 1492 BC; and
- the blazing of Venus and Mercury and the thunderbolt of Jupiter which toppled Phaethon in 685 BC.

The last few chapters present an excursion into the site plans and iconography of Mesoamerica from about 2000 BC. In these last chapters you will find that the more closely detailed findings from Mesoamerica will match and often exceed the information available from the Eastern Mediterranean.

Highlights of New Findings

I checked and verified many theories which had been proposed by others about the past. Below I have listed new findings which came out of the attempt to establish a chronology and develop a rational set of mechanics for planetary

interactions. Many of these findings have remained unknown (or obscured) to other investigators. Other items listed below are well established, but tend to be avoided or negated by researchers of the catastrophic past.

I am offering this list for those readers who are familiar with the major elements of the catastrophic literature of Immanuel Velikovsky and David Talbott. If this is all new to you, skip the rest of this page and proceed to the next chapter.

- The Earth never turned over -- at least not completely and certainly not permanently. This had been suggested by Velikovsky and others, but is a nearly impossible notion. I dispute this and discuss the origins of these notions in the Appendix "Polar Relocations Disputed."
- The age of the Earth, Mars, and the Moon are exactly what they seem to be from the most abundant earliest rocks. The ages do not need to be expanded to fit a theory of the single creation of the whole Solar System, as popular science has done. Details in Appendix A.
- Saturn probably first entered the Solar System 600 million years ago, before the Cambrian Explosion. The sudden development of new phyla and species could be attributed to a nova event (and a mass expulsion) of Saturn at that time.
- All the mass extinctions, and the speciation events which follow these, can be attributed to plasma discharges of Saturn as its orbit repeatedly, and at regular intervals, brought Saturn to an intersection with the Solar System. The excursion through the Solar System would extend over about 15,000 years. This is discussed in the chapter "Nevada Conference."
- The Permian extinction, 250 million years ago, is the second to last nova event of Saturn, and occurred at a time when Earth was still on an equatorial orbit about Saturn. It did little to advance life on Earth, taking it backward by a hundred million years. But Earth became a Solar System planet after the end of the Permian. The plant forms of Earth testify to the two distinct environments.
- The glaciation dated 30 million years ago and the intermittent glaciation since 3 million years ago (which can be blamed on electric plasma contacts by Saturn) follow the 27-million year repeating pattern. The rise of

hominids in the last three million years is discussed in the chapter "Ice Ages and Humans."

- The last intermittent glaciations might testify to a series of recent interactions between Earth and Saturn.
- The mention in many creation myths of a period of darkness preceding creation can be dated to the early Neolithic or late Upper Paleolithic and is likely the result of nanometer dust particles in the stratosphere after a massive compressive force and lightning strikes by Saturn in North America in 10,900 BC. This caused the worldwide period of extreme cold, drought, and darkness, recognized today as the Younger Dryas period. For more on this see the chapters "Tunguska and Chicxulub" and "The Younger Dryas," with additional Mesoamerican retellings in the chapters "The Chilam Balam" and "The Popol Vuh." The cataclysm is addressed in papers by Richard Firestone, et alii, in 2001 (*Mammoth Trumpet Magazine*), and in 2007 (*Proceedings of the National Academy of Sciences*).
- The clouded swirling skies which are found at the start of most creation myths are the result of Earth falling into a subpolar orbit with Saturn and entering the lower part of the coma of Saturn. See the chapter "The Event of the Younger Dryas" for a narrative and a consideration of the dynamics. This also coincided with the start of the Hypsithermal period in 9500 BC (for which see the chapter "A Timeline and Gimbutas").
- While traveling through the lower plasma formation of Saturn's coma, the Earth three times experienced the formation of three ball plasmoids 150,000 to 400,000 miles (240,000 to 644,000 km) below the South Pole, with lines of electrons connecting these and running past Earth to an object in the north skies. This started in 10,900 BC, and ended in 8347 BC. This was investigated by the team led by Anthony Peratt, and published in 2003 and 2007 in the *IEEE Transactions on Plasma Science*. The dates are from my findings.
- The ubiquitous female figurines found in the millions on millions worldwide, dating from the Upper Paleolithic and the Neolithic, are representations of Uranus, Neptune, Saturn, Mercury, and Mars as seen together in the skies on the ecliptic, enclosed in a coma. Discussed in the chapter "A Timeline and Gimbutas."

- The flood of 3147 BC is visually correctly identified by Sumerian and Bible sources (although shifted to a narrative of 2349 BC) if it is assumed that Jupiter (at that time close to the Sun) passed Saturn and its planets on the inside of Saturn's orbit. The current orbital inclinations of the outer planets matches the expected vertical separations of the planets in 3147 BC. Discussed in Appendix B.
- The Palette of Narmer depicts Venus, Mars, and Uranus, where the pharaoh figure is Horus/Mars (and dressed as Saturn) -- not some battle of unification for prehistoric Egypt, and with Mercury as the sandal bearer of the pharaoh. See the Appendix "The Palette of Narmer."
- The bee and the sedge, as in "He of the Bee and the Sedge," is the pharaoh as Saturn, with Venus as the bee and Uranus as the sedge. See the chapters "The Creation," and "The Start of Time."
- The raven and dove let out by Noah to test the waters can be identified as the planets Uranus and Venus as seen from Earth directly after 3147 BC. The Mesopotamian flood myths identifies the same planets and adds a Swallow -- which is likely the Moon but might be the later Mercury.
- The report in the Bible and in Mesopotamian legends (and hundreds of additional flood legends) of a ship landing on a mountain after the flood is the backlighted crescent of Jupiter on top of a massive outpouring of plasma from the south pole of Jupiter. In Egypt, as in some Mesopotamian retellings of this event, this is also understood as an approaching celestial bull, which destroyed the city of the Gods.
- The biannual sightings of Mars passing close to Earth between 3070 BC and 2750 BC are recorded as events in the dynastic records of the Palermo Stone of Egypt.
- The orbits of the inner planets have changed only minimally since 3147 BC. Most changes involve an apsidal rotation of the second nodal point. Planets have to line up exactly with the Sun to result in an electric field interaction of their plasmaspheres.
- The few interactions with Venus (which have been presented as "collisions" by others) occurred at distances of 10 to 12 million miles (16 to 19 million km) and 17 to 20 million miles (27 to 32 million km). Electric interactions

with Mars occurred at much closer distances, but probably no closer than 40,000 miles (64,000 km). Details in various chapters and Appendix B.

- The orbit of Earth enlarged four times since 3147 BC: in 2349 BC, 2193 BC, 1492 BC, and 747 BC. See Appendix B, "Celestial Mechanics." Each time the Earth reached a different location from the Sun, it needed to adjust its charge level, and plumes of plasma extended up from the magnetic poles, perhaps lasting for years.
- Both the north and the south plumes, extending up some 10 or 20 Earth diameters, were seen throughout the world. The ends moved with the rotation of the magnetosphere, making them look like they were waving in a wind. The people of Mesoamerica called them trees, with birds sitting on top. Egypt called them braziers releasing plumes of smoke and Mesopotamia called the east and west plumes flags or banners and recorded them in seals and sculptures. Mesoamerica in two instances provides a count of how many times this happened. The plumes were detected by NASA in dark mode plasma in 2009.
- While Jupiter was in the asteroid belt, the mountain form of the lower plasma disappeared. Instead, the plasma from Jupiter's south pole extended directly left and right to the asteroids and curved up further away (Jupiter has a reversed magnetic field). These are the ram horns of Amun-Ra. The form is called the "shen" in Egypt -- a circle on a flat line -- and is depicted as a boat almost everywhere in antiquity. See the chapter "The Career of Jupiter."
- Jupiter's coma tripled in size in about 2527 BC as it left the asteroid belt, but lost its coma again by 2438 BC. The coma returned in 2349 BC (the "flood of Noah"), but eventually reduced to the visual size of the Moon. In 2150 BC Jupiter caught on fire and burned up a substantial amount of its atmosphere. When this extinguished, Jupiter reduced in size to that of a star.
- The Earth had equatorial rings until 2349 BC (like all other planets with a magnetic field), called the "Absu" in Sumer and the "Duat" in Egypt (and the "House of Nine Bushes" in Mesoamerica). The Egyptian "doorway to the other world" is the shadow of Earth cast on the equatorial rings, the Duat. This is discussed in a number of places, first in the chapter "The Absu and Speculation" and in more detail in later chapters. The "flood of

Noah" consisted of the sudden removal of the equatorial rings, and was accompanied by severe storms and rains.

- The Moon appeared near Earth after 2349 BC, when the Earth's orbit increased, but did not fall into a regular orbit shared with Earth until perhaps about 2280 BC. The legendary emperors (gods) of China, Yao and Shun, are Jupiter and the Moon. Likewise for Abraham and Isaac. These two were depicted in Mesopotamia also, on the victory stele of Naram-Sin, the great grandson of Sargon, showing Jupiter with his mountain.
- The Bible identifies the blazing of Jupiter as the first "Tower of Babel" event. The date is most likely 2150 BC. There was a similar event involving Mercury, much later and thus better remembered, in 686 BC. This last bursting into flame was remembered worldwide, and was also identified with the "Tower of Babel" event.
- The Olmec Long Count calendar was instituted on February 28, 747 BC (astronomical year -747). This is also the first full day of the Babylonian "Era of Nabonassar," and the day before the start of the new Roman calendar. The Olmecs added 2400 Tuns (years of 360 days) to account for the past history in solar years, resulting in a Long Count notation starting at 6.0.0.0.0. This is discussed in the chapter "The Maya Calendar."
- As a result of instituting the Long Count in 747 BC, the Maya/Olmec creation date of 3147 BC is accurate as the date for the terminal event of the polar alignment of Saturn -- in solar years. Our use of the date of 3114 BC is based on a year of 365.24 days. Later retrocalculations by the Maya also used a year of 365.24 days.
- The Venus Tablets of Ammizaduga are correctly dated to the period of 689 BC to 667 BC (in Eastern Mediterranean chronology). See the chapters "The Tablets of Ammizaduga" and "The Hour of Phaethon."
- Venus and Mercury blazed like suns in 685 BC (the year corrected from Eastern Mediterranean chronology) for 40 days, as the result of an unprecedented plasma output by the Sun (the Solar Wind), which was brought on by the sudden reduction in the orbit of Mercury in the year previous. This electric event changed the inclination of the Earth's axis, resulting also in moving the equinox by 15 days.

- A thunderbolt from Jupiter which landed at the Sun on July 25, 685 BC brought the blazing of Venus and Mercury to an end. This is what is recounted in the legend of Phaethon. The calendar dates and intervals are recorded by the *Chilam Balam* and are celebrated in Mesoamerica with site alignments to the corresponding sunsets, and as New Year's day.
- In 685 BC the Earth's axis relocated from the center of the pan of Ursa Major to a location nearer Kochab (called "pole star" in ancient sources) in Ursa Minor in a period of 40 days. Discussed in the chapter "The Hour of Phaethon."
- Before 685 BC, the intersection of the equatorial and the ecliptic was directly below the Pleiades. Thus the Pleiades were seen directly above the rising Sun at the spring equinox. This is attested to worldwide, and matches retrocalculations for the previous location of the Earth's rotational axis. There was no precession of the equinoxes before 747 BC.
- In 685 BC the equinoxes moved 15 days into the future. This did not change the length of the year, but it changed religious feast days worldwide. The inclination of the Earth's axis assumed the current value of 23.5 degrees. It was 30 degrees before that time.
- The last part of Book Five of the *Sibylline Oracle Books* (of AD 115) accurately recounts the changes in the sky in 685 BC. Details can be found in the chapter "Sibylline Star Wars."
- The alignments of ceremonial centers with distant volcanoes in the Olmec region and the Valley of Mexico accurately recall the calendar dates (the horizon locations of the setting Sun) of the catastrophic events of 3147 BC, 2349 BC, 1492 BC, 747 BC, and the axial change of 685 BC. See the chapter "Olmec Site Alignments."

Contents and Resources

I write mostly from memory and do not always get things right. If you find errors, let me know. Questions and differing interpretations are also welcomed. Especially questions. If something is not clear, I need to know, so it can be corrected. I type in a hurry and my word editor is way behind. My e-mail address can be found at the bottom of this page. Tell me which chapter (and revision number) you are reading. But even the mention of a single word will

help. I can find the instances (or misspellings) of a word among all 700,000 words of these 41 text files in under a half second.

The "Table of Contents" (a link at the top of this webpage) outlines the narrative and lists the subjects covered by each chapter. There are thirty-four chapters, and 17 appendixes. Many chapters are quite short. Everything can be read in 40 or 50 hours.

The narrative text can be searched for key words. See the Table of Contents page for a search link. There is a list of **books** and **links** pertaining to the Saturnian Theories. This site also (currently) includes a collection of 7000 mirrored **files** lifted from the web, sorted into 180 topics. The collection can be searched with another search script located at the Table of Contents page.

Since April, 2011, there also is a listing of pdf files (one per chapter), which is regenerated with changes and spelling corrections of the HTML text. Since May 2015, complete book editions of this text are available on line as PDF, EPUB, and MOBI (Kindle) files. I'm indebted to Kees Cook for the conversion scripts.

As a last note: You may want to skip the first introductory chapters, like Chapter 3, which covers how the polar alignment developed, Chapter 4, which presents a further set of postulates, Chapter 5, which offers the Earth's equatorial rings and discusses dogma and speculation, and Chapter 6, which outlines alternative cosmologies, pictures the scale of the present Solar System, and suggests the foundations for life on Earth. Skip this boring stuff and start directly with Chapter 7 (ice ages, Homo Erectus and his Acheulean Hand Axe) or Chapter 8 (Tunguska, Chicxulub, and the Great Lakes atomic detonation).

Endnotes

Note 1 --

The following sites retain a semblance of sanity, express a deep need to investigate, and exhibit considerable creative thinking.

- [\[http://plasmacosmology.net\]](http://plasmacosmology.net) A narrative description, including some catastrophism and mythology. A very extensive site, written in a summary, easy to read style. The mythology follows Dave Talbott's mostly.

- [\[http://plasmaresources.com\]](http://plasmaresources.com) A site equal in scope and general interest, run by David Smith, who is also editor of the "Picture of the Day" at Thunderbolts.info. The inclination is mostly toward space science. No mythology.
- [\[http://sites.google.com/site/cosmologyquest/default\]](http://sites.google.com/site/cosmologyquest/default) A very readable overview of cosmology and plasma theory which generally cuts across the handed-down science. Includes a mythology section. By Michael Suede.
- [\[http://knowledge.co.uk/sis/\]](http://knowledge.co.uk/sis/) Society for Interdisciplinary Studies (SIS) site -- the classic site for continued attempts at straightening out the chronology of the Middle East which was first questioned by Velikovsky in the 50s and 60s. Also largely concerned with catastrophism, but almost entirely based on fugitive comets. Some mythology.
- [\[http://plasma-universe.com\]](http://plasma-universe.com) An extensive collection on plasma theory, developed and maintained as a Wiki site by Ian Tresman of the SIS. No mythology.
- [\[http://holoscience.com/\]](http://holoscience.com/) Holoscience, Wal Thornhill's site -- plasma theories at planetary and galactic levels and experimental work applied to the Saturnian Theory. Working in concert with Talbott (see "Thunderbolts" below). A very reductive mythology.
- [\[http://velikovsky.info/\]](http://velikovsky.info/) The "Velikovsky Encyclopedia" is a recent endeavor (2009) to provide resources related to the writings and ideas of Immanuel Velikovsky -- under the unique premise that both sides of the "controversy" could be presented (which in effect will go to prove Velikovsky's case). The authors and archivists write under a thin veneer of anonymity. An interesting tangle of pros and cons.
- [\[http://aeonjournal.com/\]](http://aeonjournal.com/) Aeon (magazine) site -- a promotion of the Saturn Theory; started by David Talbott. Editors: Ev Cochrane and Dwardu Cardona. Cardona is an imaginative and convincing writer. Cochrane is a tireless researcher. This site periodically disappears off the map. Standing still since 2005.
- [\[http://othergroup.net/thoth\]](http://othergroup.net/thoth) *Thoth Newsletter* from the Kronia Magazine site -- which was a standard in promoting the Saturnian Polar Configuration. Kronia.com was discontinued 3/2010. But the complete set of the Internet publication *Thoth* can be retrieved from here (there are two other locations).
- [\[http://kronos-press.com/\]](http://kronos-press.com/) Kronos Press -- Books; and a number of articles by Ralph Juergens originally published in *Kronos Magazine* (and *Pensee*).
- [\[http://thunderbolts.info\]](http://thunderbolts.info) The parent site to the current endeavors of Dave Talbott and friends. A "picture of the day" feature which always amazes, plus an archive. Collected essays by other people. Promos for recent books

and book series. Videos are also available on line (plus DVDs for sale). Connection to a wide-ranging forum on matters of "plasma and electricity in space." No mythology.

- [\[http://electric-cosmos.org/indexOLD.htm\]](http://electric-cosmos.org/indexOLD.htm) Don Scott's great explanation of plasma theories. An electrical engineer, avid astronomer, and supporter of Saturnian Theory. The link above connects to an earlier version of his book *The Electric Sky* (2006). Try also [\[http://electric-cosmos.org/index.htm\]](http://electric-cosmos.org/index.htm)
- [\[http://mikamar.biz/\]](http://mikamar.biz/) A clearinghouse for books on the Polar Configuration and Velikovskian matters, or, as they say "Products supporting Prehistoric Reconstruction and Plasma Cosmology," and including used books. A valuable resource. Books, but no placed texts on mythology.
- [\[http://velikovskian.com/\]](http://velikovskian.com/) [currently hijacked] A journal of work stemming from the research of Velikovsky. Offers a number of books also. Charles Ginenthal (ed.), Lynn E. Rose, Gunnar Heinsohn, others. Has been standing still for a couple of years.
- [\[http://science-frontiers.com\]](http://science-frontiers.com) "Strange Science, Bizarre Biophysics, Anomalous Astronomy" -- from the pages of the world's scientific journals -- always interesting reading. No mythology.
- [\[http://maverickscience.com\]](http://maverickscience.com) Ev Cochrane's website (editor at Aeon). Includes some of his outstanding articles. Mythology!
- [\[http://catastrophism.com/\]](http://catastrophism.com/) Actually a CDROM offering of past literature on the subject. But since 2008 offers some outlines of texts and some articles.
- [\[http://varchive.org\]](http://varchive.org) The Velikovsky archive of unpublished documents by Jan Sammer. Mythology.
- [\[mythopedia.info/\]](http://mythopedia.info/) Marinas van der Sluijs's Mythopedia -- originally based entirely on the image and story evidence of the Polar Configuration, but now given over to mythology explained as auroras. Very professional, very verbose, very physically inaccurate, and offered as a book (or books) in progress.
- [\[http://bearfabrique.org\]](http://bearfabrique.org) Ted Holden's site which discusses the improbability of dinosaurs being able to move and live with the gravity we experience today. Nice article on the flight capabilities of prehistoric birds. Large collection of other source material in mythology. A few political items.
- [\[http://grazian-archive.com\]](http://grazian-archive.com) Alfred de Grazia's writings. Everything is in PDF as complete books or in HTML. Absolutely outstanding! *Chaos and Creation* more or less (more less than more) parallels these pages. Of great interest, and totally engaging, is *God's Fire*. This is the story of Moses and

the Exodus (1500 BC). Among other things, he reviews works by every biographer of Moses since antiquity, the operation of the Ark, the organization of the camps, the details of the whole migration, the electrical tricks of Moses, his interaction with Yahweh, and the character and psychology of Moses. See also his *The Burning of Troy* and *The Disastrous Love Affair of Moon and Mars*.

- [\[http://gks.uk.com\]](http://gks.uk.com) It stands for "God-King Scenario" and promotes the book *An Ancient World in Chaos* (2008) by Gary Gilligan with offers for two additional books. An analysis of Egyptian iconography, refreshingly direct and unpretentious, which assigns the Gods of Egypt to the known planets and Hathor to an equatorial ring system. Mythology.
- [\[http://saturnian.org/\]](http://saturnian.org/) Saturnian Org. Standing still for a decade -- broken links and a few papers posted.
- [\[http://creationism.org/patten/PattenMarsEarthWars\]](http://creationism.org/patten/PattenMarsEarthWars) Donald W. Patten and Samuel R. Windsor *The Mars-Earth Wars* (1996). An excellent interpretation of the destructive record of Mars in the 8th and 7th century BC. It is mythology, geography, and celestial mechanics.
- [\[http://firmament-chaos.com\]](http://firmament-chaos.com) John Ackerman ("angiras") *Firmament: Recent Catastrophic History of the Earth* (1996) and *Chaos: A New Solar System Paradigm* (2000) establishes the repeated meetings of Earth and Mars (and Venus) primarily from Vedic sources. Ackerman is a physicist.
- [\[http://everythingselectric.com\]](http://everythingselectric.com) "In the theme of an Electric Universe. If the information you seek doesn't exist within these pages, then it probably doesn't exit" says Gary Gilligan. A mythology thread started 2010.
- [\[http://www.electricuniverse.info\]](http://www.electricuniverse.info) "Highlights the importance of electricity throughout the Universe. It is based on the recognition of existing natural electric phenomena (e.g., lightning, Saint Elmo's Fire), and the known properties of plasmas (ionized "gases") which make up 99% of the visible universe, and react strongly to electro-magnetic fields." A Wiki site; an attempt at universal information. No mythology.
- [\[http://sites.google.com/site/dragonstormproject\]](http://sites.google.com/site/dragonstormproject) "Recent impact evidence in the Americas. Extensive, map-based graphics." By Dennis Cox.

I may not agree with the physics of many of the cosmologically and catastrophically oriented sites, but their varied interpretation of past events ought to be taken into consideration. The sites (or books) of Patten and Windsor (*Mars-Earth wars*), John Ackerman (*Firmament*), Gary Gilligan (*An Ancient World in Chaos*), and Alfred de Grazia (many well written on line books) are independent attempts at postulating cosmologies. They are independent from the

current fad of presenting electricity and plasma on a cosmic scale, which offers nice images but no clear path for a history of Earth.

Besides these there are two dozen books (not listed here) which blame any and all catastrophes on cometary impacts despite the fact that we have no evidence that meteors have ever done much of anything to the surface or climate of Earth.
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Note 2 --

The September 15, 2007, impact in Carancas, Peru, resulting in a 45 foot diameter crater, was caused by a chondrite (stony) meteorite 10 feet in diameter.



[Image: Carancas, Peru, crater. After Michael Farmer.]

In theory, it should have delivered as much energy as an atomic bomb with an explosive energy of 15-kiloton equivalent of TNT -- enough to destroy New York City -- but there was only smoke and steaming groundwater. People walked over from nearby to have a look.

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Note 3 --

The principles of panspermia would claim that life is universal throughout the galaxy, and likely throughout the Universe. This is based on the enormous complexity of cells and their DNA, and also on the fact that sections of the so-called 'junk DNA' largely replicates from some of the most simple organisms (such as oceanic flatworms) to the most complex mammals.

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Note 4 --

The date, 2349 BC, as with other dates in the text, was established by medieval and 16th-century chronographers, and seems to be well supported from other data not available to them, as is true for other dates I have used. See Appendix A, "Notes on Chronology."

Date estimates in the Upper Paleolithic and Neolithic were developed from the iconography of figurines in Europe and Anatolia, supported by sequencing of these forms by others, and from corresponding climate data. See the chapter "Saturn and Archaeology."

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Note 5 --

The concept of *subjective consciousness* was developed by Julian Jaynes in *The Origin of Consciousness in the Breakdown of the Bicameral Mind* (1976). *Subjective consciousness* involves the ability to recognize yourself as seen by others -- an "analog I" -- which is internalized and placed into the space of the imagination. This represented a new mental space based on a metaphorical displacement of the self, and had not been seen (or recorded) before about 1500 BC. The "space" suggested here is a concept predominantly defined in Indo-European languages. People in cultures based on other grammars have formed equivalent solutions.

You can look through the "eyes" of this "substitute I" or even observe yourself from afar in your mind. Biologically it involves the separation of volition and consciousness in the speech centers of the brain. "Memory" and "self-awareness" are not subjective consciousness, they are simply aspects of consciousness. All animals have memories, all animals are aware of themselves.

Some people never achieve subjective consciousness, yet they appear fully functional. Pre-subjectively-conscious people are almost completely indistinguishable from subjectively conscious people. Pre-subjectively-

conscious people can learn anything, including mathematics, and certainly they can joke, have emotions, and carry on convoluted dialogues with others. However, they rely heavily on the learned admonitions of parents and authority figures ("oughts" and "shoulds") and have difficulty with novel situations. Pre-subjectively-conscious humans also do not have the ability to imagine the reflective thinking of others, that is, how others might imagine them as thinking.

Wikipedia sums it up well; under "Bicameralism" as follows:

"Julian Jaynes saw bicamerality as primarily a metaphor. He used governmental bicameralism to describe a mental state in which the experiences and memories of the right hemisphere of the brain are transmitted to the left hemisphere via auditory hallucinations. The metaphor is based on the idea of lateralization of brain function although each half of a normal human brain is constantly communicating with the other through the corpus callosum. The metaphor is not meant to imply that the two halves of the bicameral brain were "cut off" from each other but that the bicameral mind was experienced as a different, non-conscious mental schema wherein volition in the face of novel stimuli was mediated through a linguistic control mechanism and experienced as auditory verbal hallucinations."

The concepts are more fully developed *ad passim* in later chapters. It's not a metaphor, by the way.

[\[return to text\]](#)

Note 6 --

Day of the month dates for the events of 685 BC are accurately recorded in the 16th-century AD Maya *Chilam Balam* as intervals. Knowing the terminal date from other sources, the starting date can be found as well as dates of intermediate events. In addition, the *Chilam Balam* provides "proof" intervals to make its claims, and even lists the European Julian year for the event (as a Tun year). See the chapters "The Maya Calendar," "The Chilam Balam books," and "The Olmec Record." The hour can be pinpointed from an Australian native legend, as well as from the Northern European epic *Beowulf*.

[\[return to text\]](#)

Special thanks to M Signatur for suggesting the expanded synopsis.
Special thanks to K Cook for the HTML to PDF conversion script.



Chapter 3: The Osiris Mystery.

\$Revision: 42.4 \$ (intro.php)

Contents of this chapter: [\[Introduction\]](#) [\[The Osiris Mystery\]](#)
[\[David Talbott's Saturn\]](#) [\[Adding a Plasma Connection\]](#)
[\[The Talbott/Thornhill model\]](#) [\[Objections\]](#) [\[Endnotes\]](#)

*"The most 'ancient treasure'
that was left to us by our predecessors
was the idea that the gods are really stars,
and that there are no others."*

-- Giorgio de Santillana and Hertha von Dechend, *Hamlet's Mill* (1969),
quoting Aristotle [\[note 1\]](#)

Earth, Mars, Neptune, and Saturn all have their axes of rotation at 24 to 25 degrees to their orbit. This should not be. We would expect all the planets in the Solar System to have their spin axes pointing in the same up and down direction as the Sun. The spin axes of all of the 134 satellites of the planets point in the same direction as their parent planet, with only a few rare exceptions. [\[note 2\]](#)

The divergent and nearly identical inclination of the spin axes of these four planets is one of the first clues to a number of cosmologists that our Solar System is a composite of two systems (although it is a bogus indicator). The other hint was that our ancestors had called Saturn "the Sun," "the best Sun," "the first Sun." Perhaps Earth had at one time been a satellite of Saturn, or a planet orbiting Saturn? Saturn has all the look of a burned-out brown dwarf star which in the past could have supported life on closely orbiting planets. At some time in the past, Saturn with its planets might have entered the Solar System and the two systems merged. But when and how did this merger take place? [\[note 3\]](#)



[Image: The Egyptian "Eye of Ra" representing the unity at the beginning of time. It first appears early in the Old Kingdom of Egypt. In the Middle Kingdom the parts of the sign become symbols for fractions of the number one. Source: public domain.]

Introduction

In 1960 David Talbott started investigating the ancient literature of Mesopotamia and Egypt, and soon came to the conclusion that, in fact, Saturn had stood in the sky, ablaze like a sun, during an earlier period recalled by people of the second and third millennium BC.

Talbott concluded that, before about 3000 BC, Saturn had stood over the North Pole of Earth as an immense globe, connected to Earth with a stream of dust or water, with Mars in an intermediate position. The period of this polar apparition was universally remembered throughout the world as the "Era of the Gods." During this time, Saturn ruled and man lived in paradise with the Gods. The closing of that time was mourned throughout the world and has shaped us ever since. [\[note 4\]](#)

The ending of the "Era of the Gods" (in 3147 BC) brought on an explosive rise in civilization: intensive agricultural practice (simultaneously in five or more unrelated regions), monumental constructions, cities, writing, kingships, and wars of conquest. The "Era of the Gods" permanently set our concepts of Gods and heaven and became the basis of all religions. It shaped our languages, architecture, and political systems, and even our ferocious antipathy toward our own species. Most importantly, humans developed a *subjective consciousness* some time after the close of the "Era of the Gods." The acquisition of subjective consciousness was not a certain process nor universal. I'll detail this along the way with the narrative.

In the present chapter I'll describe how an explanation of the mechanics of Saturn as a Polar Sun developed in the 20 years since 1980. In subsequent chapters I'll detail the significant events leading up to the Polar Sun and from there to the historical age of the seventh century BC. This chapter will touch on all these events to some extent, but mainly on the Polar Sun scenario.

The Osiris Mystery

In the first century AD, Plutarch, in his essay "Concerning the Mysteries of Isis and Osiris," described the strange liturgies of the Egyptians. Plutarch was at a loss to explain the story of Isis and Osiris which so pervaded all of Egyptian thinking. Plutarch's reaction was based on 400 years of Greek common sense. He thus reduced the story to a series of metaphors and similes, even equating the death and resurrection of Osiris with the rise and fall of the Nile and the growth of vegetation. But it becomes obvious from Plutarch's repeated attempts at explanation that he failed to understand the mysteries which in his time were already 3000 years old.

We will progress no farther than Plutarch in our attempt to explain myths and the mythical histories of the Gods if we refuse to accept myths at face value -- that is, as long as we persist in metaphorical explanations. I do not believe that the myths of antiquity were written as metaphors for lightning, sunshine, or spring, or as guides to moral behavior. This last is especially suspect, for if myths form the basis for religion, one would expect them to have some exemplary content. However, this is universally lacking. Myths have no point to make. The myths are, in fact, history. They need to be understood as literal rather than as metaphorical, allegorical, philosophical, or symbolic. This is important, and something I will adhere to throughout this text, similes excepted. [\[note 5\]](#)

In the 1980's I ran into Immanuel Velikovsky's books. Velikovsky managed to bring ancient myths together into a more or less cohesive story which retold the myths as history -- specifically a history of planetary events affecting the Earth. Velikovsky published *Worlds in Collision* in 1950 and *Earth in Upheaval* in 1955. [\[note 6\]](#)

Worlds in Collision is actually very readable and started to answer many questions about antiquity, about the strange concerns and thinking of our ancestors, and about Mesoamerica. However, there are problems with some of Velikovsky's research. *Worlds in Collision* seems at times dated, for, despite the fact that nothing more relevant exists, many of the sources are retellings from earlier events or from late antiquity. Just as suspect for us are the quoted sources from the late 19th through the middle of the 20th century. References in *Worlds in Collision* are at times selectively quoted (although I find this less troublesome) and more frequently attributed to the wrong era.

Velikovsky's second book, *Earth in Upheaval*, was presented as a compendium of physical data (mostly geological) bearing on the subject, but the data fails to

be convincing, whereas the literary sources of the first book succeed in telling a believable story. Of course literary mythological sources are incomprehensible to scientists, if not complete anathema, so that the major contemporaneous critiques of Velikovsky, which universally came from staid scientific disciplines, centered on the mechanics of astronomy and astrophysics.

The reason for the failure of the scientific community to penetrate *Worlds in Collision* should be obvious: The mythology, and the history implied in the mythology, were completely outside the range of training and knowledge of the astronomers and physicists who got involved. The scientists simply did not know what to talk about, and addressed themselves to side issues of physicality instead. The validity of myth and ancient history could not be understood.

And although mostly the critiques represented reactions to Velikovsky's suggestions of catastrophism, catastrophism soon entered the very disciplines which had objected to it so vehemently, although always placed safely distant in the past. The acceptance of the giant meteor (meteorite) crater depression in the Yucatan as indicative of a catastrophic event (responsible for the worldwide K-T boundary layer of Iridium dated to 65 million years ago) was an admission by the scientific community that "such things" could happen. Academics might entertain catastrophes millions of years ago, but not within recent historic time.

Velikovsky, however, dealt specifically with historical time, not geological time. *Worlds in Collision* recounts how Venus ran on an eccentric orbit around the Sun in the second millennium BC, crossing Earth's orbit regularly. Velikovsky suggested that Venus had been recently expelled from Jupiter, that it showed with the tail of a comet, and that it approached Earth in 1492 BC, swinging around it before proceeding on its course, to return again 52 years later for another approach. [\[note 7\]](#)

Going by the physical characteristics, Venus was created recently. There are many claims in antiquity to this -- "born of Zeus" -- that is, Jupiter. Some people point to the red spot of Jupiter to surmise a possible mass expulsion. Venus was, however, not an expulsion of Jupiter, but an escaped satellite of Saturn. It most likely had its genesis in the mass expulsion of 4077 BC. It shows up in Egyptian iconography by 3100 BC, in the earliest depictions of the Horus/Mars pharaoh figures, where the pharaoh wields Venus as a club to pound a captive. The notion that Venus originated from Jupiter was promoted by Velikovsky, and stands today as the most persistent error which continues to foment flights of rhetoric among cosmological fanatics and establishment academics alike.

Velikovsky held that the approaching planet was taken by the Hebrews to be the savior God of the Exodus. The Hebrews left Egypt during the confusion and devastation which resulted from the alignment with a planet of equal size to the Earth. It caused the demise of the Middle Kingdom of Egypt. The Earth's orbit increased, and the year lengthened. It is only becoming clear during the last decade how this could have happened and what the forces between the two bodies would have been.

The "close approach" in 1492 BC was probably a separation of some 10,000,000 miles (16,000,000 km). The "collision" was due to an electric field force, not a physical impact or due to gravitational interactions. I'll clear up the matter of electric effects in later chapters and Appendix B.

Worlds in Collision relates another disturbance of Earth in 747 BC, one instance of a series of disruptive close approaches of Mars, at one time involving also the Moon and Venus. The details of these interactions are described vividly in the *Iliad* as the combat of the Gods in the heavens paralleling the Trojan War by the mortals below. The *Odyssey* recounts the play of Mars and the Moon, as does the Mesoamerican *Popol Vuh*. In 747 BC the year lengthened to 365 and 1/4 days. Everywhere calendars were updated, most often by adding five days to the end of the old year. This epoch of over a hundred years (806 BC to 686 BC) closes with Mars and Earth taking on their current positions around the Sun and a change in the shape of the Earth's orbit. [\[note 8\]](#)

Both Venus and Mars were held in awe by people everywhere, and Venus in particular was closely watched for a period of over 4000 years (since 2349 BC) in Mesoamerica to the complete exclusion of the Sun and the Moon. This, in fact, is one of the most curious aspects of our historic past. As Velikovsky wrote:

"The Sun and the Moon are two great luminaries, and it is easily understandable that the imagination of the peoples should be preoccupied with them and should ascribe to them mythological deeds. Yet the ancient mythologies of the Chaldeans, the Greeks, the Romans, the Hindus, the Maya, preoccupy themselves not with the Sun or the Moon, but prima facie with the planets."

-- Immanuel Velikovsky, unpublished document at [\[http://www.varchive.org\]](http://www.varchive.org)

Not everything written by Velikovsky is plausible; for example, his suggestion that small flies descended from Venus on a "close approach" to Earth! His theories of the separation of atmospheric gases likewise do not stand up well to accepted postulates of chemistry and physics. But Velikovsky never attempted to define a physics for his described events, although he checked closely with people who would know and thus seldom misspoke his conclusions. [\[note 9\]](#)

Naturally, when Velikovsky missed some point, his critics would pounce on him like tigers. But the force of his argument does not derive from physics or exact dates (although he had a penchant for dates) but from an accumulation of literary sources. I struggled with the mechanics involved in the "close approach" of Earth and Venus, but what rang most true for me was his recitation of the ten commandments in Hebrew as the groans of an Earth writhing with seismic waves -- when the mountains groaned and "the hills danced like little lambs."

Velikovsky spent much of the rest of his life defending his theories, demanding tests be made by the Establishment, and making predictions. In the eyes of his critics he was all too frequently correct. He had an amazing ability to connect disparate information and to see connections where others could not. He wrote a number of additional books dealing with the chronology of the Middle East, filling 600-year gaps. Most of that later work either has been accepted or is still under discussion. [\[note 10\]](#)

Velikovsky had intended to write a history of events preceding the contact with Venus in 1492 BC, but put it aside. Some snippets can be found at [\[http://www.varchive.org\]](http://www.varchive.org) under the subject heading of "In the Beginning." It would have involved Mercury, Saturn, and Jupiter. One comment he made was that he thought the Earth had at one time been a satellite of Saturn. That suggestion started David Talbott on a search for contrary evidence.

David Talbott's Saturn

David Talbott initially sought to disprove Velikovsky's notion that Earth had at one time been a satellite of Saturn, but twenty years later he was solidly convinced otherwise, publishing *The Saturn Myth* in 1980.

The Saturn Myth held that, in the early history of Mesopotamia and Egypt, Saturn had loomed very large over the North Pole of the Earth, with Mars and "Venus" in between (actually, from my determination, this last was Mercury) and all four connected by a stream of particles of dust or water -- the *axis mundi*.

Absurd as this might seem initially, all the religious documents of the early Middle Eastern civilizations point to the same idea, as do Chinese, Celtic, Maya, and Norse recollections, the Vedas, and the legends of people elsewhere throughout the world.

The Sun (our current Sun) was but a minor character in all this. One role it played was to light up the edge of Saturn. This became the first index of the passage of time, the first "clock." (Saturn or Kronos translates to "time.") From the Earth, below the south pole of Saturn, a crescent could be seen rotating on a daily basis around the edge of the immense globe, which was suspended above the north horizon as the Earth turned.

The configuration of Saturn, Venus, Mars, and Earth all in a line (the "polar alignment") presented some very real dynamic problems, for it was initially thought that all the planets were located in the same plane, that is, the ecliptic, and rotated around the Sun in unison, with the Earth's North Pole pointing toward Saturn. The idea that Saturn revolved around the Sun with the other three planets hidden behind it -- called the "shishkebab alignment" -- would in effect have placed Earth on its side. The crescent seen on Saturn, under this model, was thought to be the planet Jupiter, located between Saturn and the Sun, just partially visible and lit by the Sun.

But it wasn't so.

The stumbling block in this five-planet shishkebab, as first proposed, was the suggestion that all the planets would, in effect, be on their sides. If this whole arrangement orbited the Sun, the direction in which the poles pointed would constantly change. The dynamics of such an arrangement are completely untenable, despite the acceptance of this configuration by a number of physicists and aerospace engineers. Earth is a gyroscope, and twisting a gyroscope's spin axis makes it react violently. The Earth would have split asunder from the forced change in rotational momentum.

It is absolutely astounding that for a period of twenty years, no one seriously objected to the shishkebab alignment, excepting a few physicists, like Tim Thompson, but none of these stated the obvious: that any change in the direction of the rotational axis of a planet would set it into a violent gyroscopic reaction. Rather than that, which was the first thing that occurred to me when I heard of the shishkebab proposal, we get endless references to Kepler's Third Law (the planets would be traveling at different orbital radiuses at the same orbital period), and even more talk of what theories are supposed to do and prove. What

an enormous waste of time that was. It was only Wal Thornhill's contribution in about 1995 which in one stroke of genius cut through this Gordian knot of unimaginative scientificism. I'll detail that further below.

One of the first independent analyses of the dynamics concluded that this configuration would only work if Mars were allowed to oscillate between Saturn and Earth -- thus alternately coming closer to and receding from the Earth. Strange as the shishkebab alignment was, this was even stranger, yet this is what Talbott had surmised from his investigations but never published as part of *The Saturn Myth*.

Details of *The Saturn Myth* were argued for 20 years. During that time there were a number of competing models, all created to fit the imagery derived from before 3100 BC. Interestingly, the imagery was never in question. Some researchers disputed the assignment of planet names to the polar apparition, and some argued for completely different phenomena. But there has been little disagreement that the imagery appears universally, certainly within the region defined by cultural diffusion from Mesopotamia -- to Egypt, Greece, India, and Rome.

Concordance from further afield was spotty and often could be argued as selectively picked, but most is better established today. There is evidence of these tales from Africa, Mesoamerica, South America, China, and Oceania, but on a lesser scale and always much later. Van der Sluijs at one time said, "None" for further evidence. But he also did not consider the creation "myths" from China, or the Nordic tale of heaven atop a tree, in effect the *axis mundi* seen from a completely different vantage point (as the "bridge to the Other World"), or the underlying strata of mythical elements which show up in Mesoamerican and South American sources.

There is, in fact, a clear record from Mesoamerica provided in the texts of the *Chilam Balam* books of the Maya, although these are horrendously arcane and almost indecipherable, especially if a prior model is not available to the reader during an attempt to crack the arcana of the texts. Once I had devised a reasonable chronology of the events from Mediterranean (and Chinese and Vedic) sources, I started, in 2006, the task of attempting to read the Maya *Chilam Balam* books. I realized soon that all that was told to have transpired by records of the Mediterranean region, was duplicated, complete with dates, in these Maya Books. However, it took over four years to decode the *Chilam Balam* to my satisfaction.

Meanwhile, back to the 20 years after 1980: it was initially surmised for the shishkebab model that the large globe suspended above the North Pole had existed since before the Old Kingdom of Egypt (before 3000 BC) and came to a final end with the dissolution of the Old Kingdom (after 2300 BC). Both date estimates proved to be incorrect, especially in that there was no information about what might have come before 3000 BC.

The era before 3000 BC became a field of speculation for some authors. Many assumed that Earth had *always* existed below the south pole of Saturn. Dwardu Cardona could imagine life developing on an Earth enveloped within the coronal glow discharge of the sun Saturn. [\[note 11\]](#)

Whatever brought the polar alignment to an end also remained a complete mystery, but its demise was to be preserved in the religious observances of Egypt as the tale of Isis and Osiris. For thousands of years, Egypt remained an extremely conservative society. The 1000-mile-long landscape, bordered by deserts on both sides, kept Egypt from invasion and from many outside influences and, together with its successful agricultural production, provided no reason to do anything different from what had been done in the past. If we were to seek a single reliable record of a worldview from antiquity, it would be Egyptian. It was the Egyptian sources which Talbott used for his book *The Saturn Myth*. [\[note 12\]](#)

What brought the Saturnian Polar Configuration to an end was an interaction with the planet Jupiter, which at that time orbited much closer to the Sun. Jupiter is massive -- it has more mass than all the rest of the planets of the Solar System together. Jupiter is also stable. With an enormous mass and rotating at a period of 9 hours today, it represents almost all of the rotational inertia of the Solar System. Jupiter would not budge. It tore the gas giant Saturn apart -- or so it looked from the vantage point of Earth.

This became the Egyptian tale of Osiris (Saturn) who was killed and dismembered by his evil brother Seth (Jupiter), his body parts strewn along the Nile river (actually the river of the zodiac, at that time already visibly cluttered with dust) and resurrected as Horus (Mars). The sister of Osiris, Isis (Venus), collected his body parts for burial and was instrumental in his resurrection as Horus. Other Middle Eastern sources have similar tales. St. Paul readily equated the death and resurrection of Christ with that of Osiris. Throughout all of the world (except initially in Egypt) Jupiter (the name translates as "youth" or "the younger") gains ascendancy to become the new primary god. In Egypt, Jupiter is

identified first as Seth, the evil killer of Osiris, but later, and certainly by the time of the first spells of the Egyptian *Book of the Dead*, as Osiris himself. [\[note 13\]](#)

Adding a Plasma Connection

Wal Thornhill ran into the cosmology of Talbott by accident, and immediately understood it in completely different terms. Having studied the works of plasma theorists, which hold that the nature of the sun is not nuclear but electric and that virtually all phenomena in the Universe are exhibitions of plasma flows, Thornhill was able to bring a completely different approach to the mechanics of the Saturnian Polar Configuration.

First, he assumed that the shishkebab formation consisted of planets stacked one above the other -- all at nearly the same distance from the Sun. Second, he maintained that the connecting stream between the planets wasn't water or dust - - it was a plasma stream from Saturn at glow or arc mode.

Thus Thornhill's major change in the model was to stack Saturn and its planets one above each other -- a stroke of genius -- which accomplished what had long been surmised but never related to physics. In rotation about the Sun, the side of Saturn would now be lighted by the Sun. Seen from below Saturn, this would be a crescent rotating about the planet. In this position the axis of Earth would not be subjected to a constant twist. All the planets would thus travel on about the same orbit around the Sun, although above or below the orbit of Saturn.

I'll discuss plasma here briefly. For more information see the websites of Wal Thornhill, Don Scott, and Anthony Peratt. For an independent view see the site of Laszlo Kortvelyessy. [\[note 14\]](#)

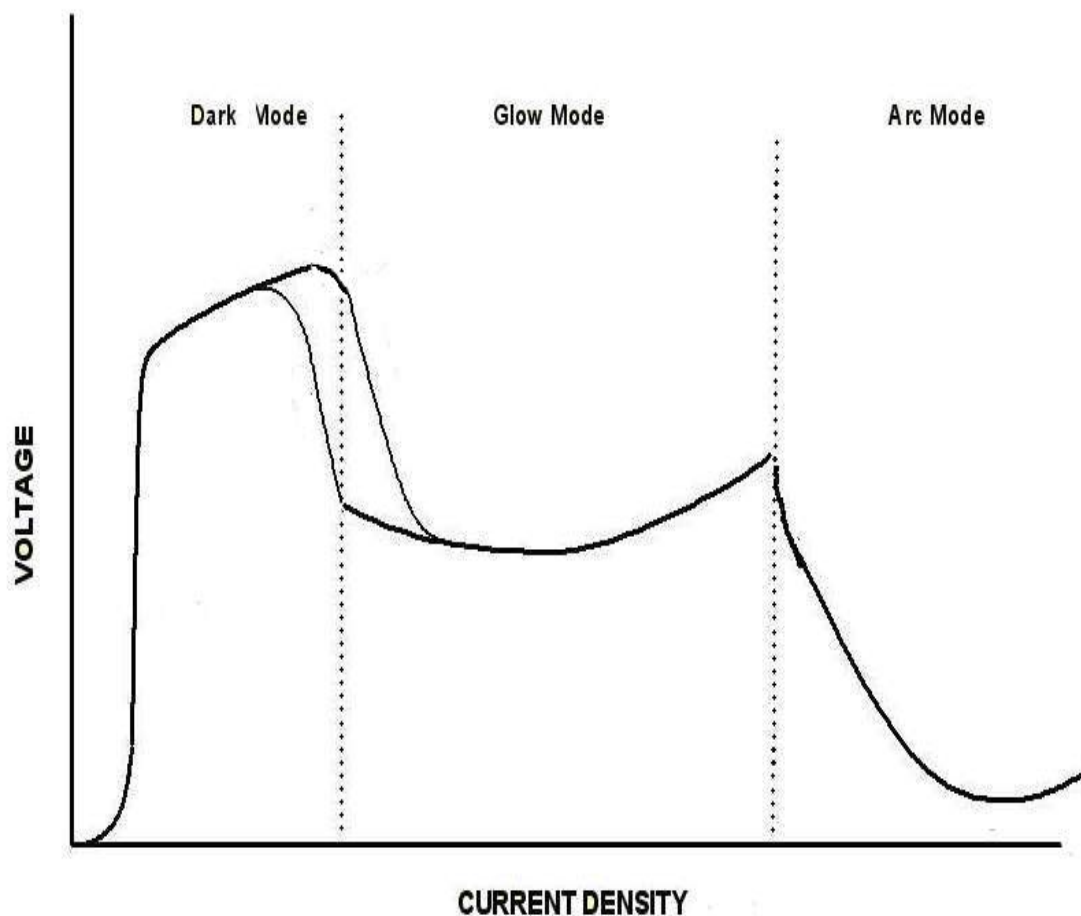
A plasma stream represents a flow of electricity (a current) through an ionized or easily ionized low-density gas. The current could be composed of electrons, negatively charged ions, protons, or positively charged ions, in any mix. The number of electrons or ions need only represent a few percent among the gas molecules (or conductor).

The flow of positive or negative charge carriers can happen simultaneously and would flow in opposite directions. (By convention, the "current" is defined as flowing in only one direction, opposite the direction in which electrons move.) The space between stars, and even between galaxies, contains enough electrons

and protons to allow the flow of plasma in absolutely huge quantities. The "vacuum" of intergalactic space thus supports plasma streams billions of miles wide and light years long. These can often be seen in X-ray imaging, connecting stars as well as galaxies.

A plasma flow could thus be understood as a very low-density gas; however, it does not behave as a gas. It is electric in nature, not unlike the controlled current flows we use for electricity in wires. The plasma current flow results from a difference in the electric field potential from place to place -- think of it as a "voltage difference."

Plasma streams take three forms. The "dark mode" represents the least current density, and is invisible. In "glow mode" the flow is visible because the increased energy of the electrons makes them radiate light. In "arc mode" the ionized media is so energized that it radiates not only visible light but also in ultraviolet and x-rays. Although arc mode represents the highest current flow, the discharge in arc mode still takes time because plasma streams are self-limiting even at large current levels.



[Image: Voltage and amperage relationship for plasma. After Don Scott.]

Plasma streams tend to organize into bundles, induced by the constriction of surrounding (circular) magnetic fields, which are in turn generated by the current flow. Since plasma exhibits a negative resistivity in arc mode, this also tends to form plasma streams into bundles, since the increased density allows transmission at a lower resistance. At smaller dimensions, as in plasma streams between planets, these bundles tend to form into twisted pairs, called Birkeland currents. [\[note 15\]](#)

The common "flash tube" used for cameras is a plasma discharge through an ionized gas. Ionization is accomplished by means of a high-voltage pulse fed to a wire adjacent to the tube. The flow of current (amperage) within the tube can be astoundingly high -- currents in flash tubes often exceed a thousand amps. Only the fact that the flash is of very short duration (1/1000 to 1/2000 second) keeps the glass from melting.

Plasma streams are applied commercially, as (for example) in neon signs, neon lamps, UV lamps, pulsed xenon lamps, carbon arc lamps, electric arc welding, and electronic flash. Plasma streams are used in precision metal milling, and in (some) radio vacuum tubes and gas rectifiers.

Natural plasma displays include electric arcing, lightning, ball lightning, Saint Elmo's fire, auroras, such obvious phenomena as flames, and less obvious phenomena such as hurricanes, tornadoes, and water spouts. Plasma in space is seen at galactic dimensions and between binary stars. In our Solar System the multi-million-volt lightning strokes between the rings of Saturn are plasma displays, as is the generation of the light of the Sun. The coma and tail of comets are plasma discharges in glow mode. (The secondary curved tail consists of expelled dust.)

The most spectacular display of plasma in arc mode is seen at Jupiter's satellite Io, which has a "volcano" facing Jupiter that has been belching incessantly and continuously for all of the 30 years since it was first spotted in 1979. (There are additional "volcanoes" like this.) During that time it has moved 50 miles (80 km) and never built a cone. In fact, all the "volcanic" spots on Io are depressions instead. Although it looks like a volcano of unlimited capacity, it is a strike point of a plasma stream between Jupiter and Io. The plasma stream is dispersed over a wide area at Jupiter (actually at the pole) and thus at a diffuse density -- in dark mode -- but it is concentrated at Io in a single spot (the closest point to Jupiter), thus driving the current density up to such a high level as to be in arc mode. The current flow is estimated at 5 million amperes. [\[note 16\]](#)

Venus's planetary plasma tail extends some 30,000,000 miles (48,000,000 km) away from the Sun as a plasma stream in dark mode, and consists (as recently found by a spacecraft) of a twisted string -- a Birkeland current. [\[note 17\]](#)

The Talbott / Thornhill model

Thornhill also made it obvious that planets are globes which each carry an electric charge and it is this -- their electric field -- which keeps them apart. The planets in the Saturnian Polar Configuration would keep their distance from each other because the electric field repulsion which would overwhelmingly exceed any gravitational considerations. But this is probably not a simple matter, especially if Saturn was indeed positively charged. I will take this up again in Appendix B.

Thornhill proposed in 2001 that the Saturnian System, including the planets Earth and Mars (he does not believe that Venus was part of this group) first entered the Solar System in circa 3200 BC and approached from below at an angle of 24 degrees to the ecliptic. (The ecliptic is the band more or less at the level of the Sun's equator in which all the planets move, but actually is defined as the orbit of Earth around the Sun.)

This suggestion solved the problem posed by the continuous change in the spin axes of the planets required by the shishkebab model. The spin axes of all the planets would now remain unchanged as the Saturnian System (sort of) corkscrewed into a circular orbit on approaching the plane of the ecliptic. After a relatively quiet period, during the "Era of the Gods," the three planets would join the other solar planets, although not until a number of violent interactions displaced Saturn, Mercury, and Mars to more distant locations (plus a relocation of the nearby Jupiter). Thornhill estimated that the corkscrewing action would have taken less than 300 years. [\[note 18\]](#)

By the Talbott / Thornhill model, Earth would have existed within the glow level plasma discharge (the coronal envelope) of Saturn before the intersection with the Solar System, and within the memory of mankind. This condition would have provided an amount of light which did not vary from day to night. The stars and other planets might not have been visible, and perhaps not even Saturn would have been seen -- just the "waters above."

Then, as Thornhill would suggest, on approaching the Solar System from deep space, and finding itself in a space dominated by the electric field of the Sun, Saturn would shrink its discharge envelope until Mercury, Mars, and Earth were located outside the sphere of visible discharge. On approaching the Sun, Saturn would become visible in the "waters above" as a giant globe hovering in the sky at the North Pole.

This scene is, in fact, the worldwide scenario of creation: First there is darkness; then Chaos; which dissolves into an image of a large globe. The waters above dissolve to show "land" -- the original land of Paradise. Everywhere this land was called "Earth," while the place where humans lived was called "Lower Earth" or "Middle Earth."

As Saturn changed to an arc mode discharge the previous encompassing glow discharge disappeared. Saturn suddenly lit up like a sun and connected to Earth, via Mercury and Mars, with an electric arc. The Gods were born, and "creation" ensued. The waters below separated from the "waters" above and light was

created -- not the light of the Sun, but the coronal discharge of Saturn. As related in all creation mythologies, mankind was witness to the birth of the Gods and the creation of the Universe. The Universe, however, consisted only of "Upper Earth" in the north populated by Saturn's satellites, and (as I will detail later) the Earth's equatorial rings standing in the sky in the south, thought to also represent an ocean. Humans thought of themselves as living in a valley between these two regions. Only in the far north of Earth was it obvious that the globe in the sky was nearly overhead. [\[note 19\]](#)

Objections

Thornhill's plasma electric model solved many of the problems of Talbott's composite imagery. However, Thornhill suggested an initiation of the signs in the sky in 3200 BC, and a demise within a few hundred years. I really doubt that there was such an easy transition. The description is correct, but simplified. It must have been considerably more complex and violent. And it would have taken much longer. I think, in fact, that altogether it took over a half billion years since the first intersection of Saturn with the Solar System to evolve into the quiescent conditions we experience today. The following are three objections to some aspects of this model:

- **First** of all, objects entering the Solar System from afar go into wildly eccentric orbits, rather than circularizing gracefully within a few hundred years, no matter from which direction they come. None of the present planets have as yet settled down to orbits flattened to the equator of the Sun and not all have circularized their orbits. [\[note 20\]](#)
- **Second**, Saturn would not gently corkscrew its way into the ecliptic to find a location among the other planets. If Saturn came into the Solar System from outside, it would act similar to a comet on approaching the Sun. The Sun is big -- 12 times the diameter of Saturn and with more than 3,500 times the mass. Saturn would be gravitationally attracted and would speed up on approaching the Sun, whip around the Sun at close range (the perihelion of its orbit), and then disappear into space to return again after a very long interval.
- **Third**, in the Thornhill model (as originally presented) the Saturnian System entered the Solar System from below the ecliptic. This was based on the unstated assumption that the Sun and its planets (and by extension, any star) together move in the direction of the Sun's north pole -- what we would call "up." This is, in fact, the movement of the whole Solar System

in its rotation about the center of the Milky Way Galaxy. But there is no particular reason why the Saturnian System would be moving in a similar manner, that is, in the "up" direction of the axis of Saturn, except to allow Mars and Earth a position below the South Pole of Saturn.

What is important is that the direction of the spin axis of Saturn and its satellites would not likely have changed. They are today still at 31 degrees to the axis of the Sun (24 to 27 degrees from perpendicular to their individual orbits). Spin (rotational momentum) represents an enormous amount of kinetic energy and as a result spin is very stable.

By 2008, the original scenario had been modified somewhat by Thornhill, and this requires some quoted text and comments, because here we see a critical theory being developed. Thornhill is here the apologist for development of theories to be used by Cardona. In an essay "Assembling the Solar System" (2008), at <http://www.holoscience.com/news.php>, he writes:

"So what I'm suggesting is quite radical -- that all of the planets and moons in the solar system did not originate with the Sun, they were captured. Capture of a brown dwarf star [meaning, Saturn] begins when the plasma sheaths touch and they 'see' each other electrically for the first time."

"The brown dwarf changes from being an anode in a galactic discharge to a cathode in the Sun's environment. The adjustment is drastic. The brown dwarf is no longer a star. It becomes the mother of all comets and subject to a steady electrical acceleration toward the Sun."

What Thornhill is pointing out here is that unlike electric charges attract. True enough. If, that is, a star entering the Sun's plasmasphere would represent a body charged to a large negative value. He then assumes that the positive charge of the Sun is enough to draw the outsider into the plasmasphere of the Sun, and it would travel to the Sun. But this also neglects the protective plasmasphere of Saturn, which would isolate it from "seeing" the electric properties of the Sun.

Is any of this true? Perhaps some of it. We do not know exactly. Astrophysics is speculation, constrained, like fantasy, by some of the laws of nature that we think we know. I suggest that Thornhill is here neglecting the isolating double layer of the plasmasphere of Saturn. Gravitational attraction would be enough to bring it to the Sun.

In entering the domain of the Sun, Saturn would be under the onus of a mismatched charge level, and thus would attempt to gather electrons from nearby space and perhaps mainly from any nearby objects, including its own satellites, and certainly its companion planets. Travel toward the Sun through the increasing electric field would continue to cause a mismatch, even on the second half of Saturn's path, away from the Sun. Saturn would have 15,000 years to do this with each entry into the Solar System and into the plasmasphere of the Sun. That simply is not enough time for a star to lose its positive charge. [\[note 21\]](#)

Electricity by itself would not move Saturn. The example used by Thornhill is of the two Pioneer spacecraft which are being minutely retarded in moving away from the Sun toward the edge of the Sun's plasmasphere. But these are experiencing forces which are far too minute to accelerate them backward to the Sun. It is certainly not doing this for these two satellites. Thornhill writes:

"That acceleration [of Saturn toward the Sun] will tend to cause the satellites of the brown dwarf to be dislodged from their orbits and, in a dynamic equilibrium, strung out behind in their primary's cometary wake. Since a comet's ion tail is a discharge current, the satellites will experience 'mega auroras' and devastating interplanetary discharges to varying degrees."

This is complete malarkey and absolute nonsense. You have to ask, how would a planet's satellite end up in its ion stream, which is made up of repelled gas ions at best? Interplanetary space is not a substance which drags satellites away from a planet. I would seriously disagree with the "dislodging of satellites." Gravitational theory contradicts this completely. The satellites will stay exactly where they can still be seen today. We have seen nothing like this, and, in fact, all the satellites of Saturn have come through displacement experiences in one piece, except for scarring.

But this particular image, of the satellites of Saturn moving into a "wake" behind Saturn, as if we are racing through a lake, corresponds to the belief among some of the Electric Universe catastrophists (notably Cardona) that Earth and Mars came into the Solar System while positioned below the pole of Saturn. With Saturn entering the Solar System from below, as proposed above, the "left behind" satellites would have been somewhere below Saturn.

There are problems associated with the "left behind" scenario besides the fact that it is science fiction. There are too many unsupported "iffy" clauses. We just

have too much data which points to a much, much longer transition period between the entry of Saturn into the Solar System and the ultimate strange polar configuration of the planets -- the last of which was all seen to happen within human memory.

Not the least of the problems with this scenario is that I am not aware that Saturn at any time took on the looks of a comet, what Thornhill calls, "the mother of all comets." I have never noted in any mythology anything representing a tail for Saturn, like a beard or long hair (as with Venus, Mercury, and the Moon). So in my opinion there would be no Saturnian satellites "strung out behind in their primary's cometary wake." There would be no wake and no primary or secondary tails and no bow shock either.

All these lacking characteristics are the result of the very high positive charge with which Saturn would have entered the Solar System, and the resulting electric field centered on itself and its companion planets.

There are other particulars which I disagree with. But it will not do to continue this critique. Let me instead suggest a constitution of the Solar System which will be developed in more detail later.

- **First**, I am suggesting a far longer period of interaction between Saturn and the Solar System and a far more complex series of interactions. Some of the interactions can be traced and dated. We have the information at hand.
- **Second**, as Saturn repeatedly closed in on the Sun (at 27-million-year intervals), it would retain most of its original planets as satellites, but some satellites might be wrenched free and start orbiting the Sun independently (even if difficult to imagine within the limits of astronomical physics). [\[note 22\]](#)

Any planets lost from Saturn would probably orbit the Sun on close orbits, much closer than Earth's present orbit, with differing inclinations to the ecliptic and probably also with differing eccentricities. Eccentricity is a measure of how much an orbit deviates from the circular, and thus how elliptical the orbit is. Seldom, if ever, would these orbits intersect. Saturn, because of its considerable mass, would remain on its very eccentric orbit, with the closest approach to the Sun (perihelion) near the orbits of these planets and an aphelion billions of miles away. And Saturn would show up only infrequently.

- **Third**, I would locate Jupiter much closer to the Sun during this period. At one time we assumed, from the knowledge of *our* Solar System, that other star systems would exhibit similar structures -- small planets in close orbits and larger planets in far orbits. The Earth today is located at a distance of 93,000,000 miles (150,000,000 km) from the Sun, called an Astronomical Unit (AU).

Jupiter is today located 5 AU from the Sun; Saturn is at 9 AU. Uranus and Neptune are far beyond that. However, we have since found over a hundred stars with indications of planets and, in all cases, we have been astounded that these stars have planets the size of Jupiter at distances of only one to two AU from the star -- that is, not much further away from the star than the current distance of Earth from the Sun.

It would thus not be unreasonable to suggest that, at an earlier time, Jupiter might have orbited the Sun at only one or two AU. At this location Jupiter would have a strong influence in modulating the orbits of any of the inner planets, and eventually provide the cause for the close of the "Era of the Gods."

- **Fourth**, what I will also suggest is that Saturn probably first intersected the Solar System at the start of the Cambrian, 560 million years ago. At that time the Saturnian planets (satellites), including Earth, continued to travel with Saturn, protected by the coronal envelope surrounding Saturn.
- **Fifth**, I will further suggest that Earth was captured by the Sun only after the Permian, 250 million years ago. For most of the time following the Cambrian, Saturn remained on an orbit with an extremely long period, crashing through the inner portion of the Solar System only infrequently.
- **Sixth**, sometime after the last three million years, however, that period was greatly reduced so that, by the time of the first humans, Saturn swept through the inner planets regularly.

Endnotes

Note 1 --

"Our forefathers in the most remote ages have handed down to their posterity a tradition, in the form of a myth, that these bodies are gods, and that the divine encloses the whole of nature. The rest of the tradition has been added later in mythical form with a view to the persuasion of the multitude and to its legal and utilitarian expediency; they say these gods are in the form of men or like some of the other animals, and they say other things consequent on and similar to these which we have mentioned."

-- Aristotle *Metaphysics* Book 12

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Note 2 --

The angle of the axis of a planet to their orbit is not actually a good indication of a familial relationship. Where the axis points to in the dome of the stars is a much better index. On this basis it will be noted that the axis of inclination of the Earth and Mars are not anywhere alike, even though the numerical values of the angles are nearly equal.

For the planetary satellites, it should be noted that almost every satellite of every planet revolves around the parent planet *at the equator* of the parent planet, with the satellite's axis parallel to the axis of the planet -- even the wildly tilted planet Uranus. Our Moon is not a satellite. It is a planet sharing the same orbit around the Sun as Earth.

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Note 3 --

Saturn is about the right size to have been a minor star and was thought to be a ball of gas, although today it is known to consist mostly of liquid hydrogen -- not typical of a star by current precepts. Yet the amount of energy put out by Saturn today (including plasma flows, x-rays, and radio waves) exceeds the amount received from the Sun by a factor of three (where the Sun's energy is calculated as impinging heat and light radiation). That Saturn may have been a star has been suggested by any number of people over the years, but this theory was based on calculation of the mass of Saturn which suggested that it was composed almost entirely of gases.

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Note 4 --

See David Talbott, *The Saturn Myth* (1980).

The conclusion that Saturn had stood at the North Pole is generally held by most mythologists, from worldwide sources, although it has remained inexplicable how this could be.

Giorgio de Santillana and Hertha von Dechend, in *Hamlet's Mill* (1969), came to the same conclusion although the authors then deny their findings because the conclusion was so unbelievable. Instead they attribute the primacy of Saturn in antiquity to a metaphor for the precession of the equinoxes, and posit this understanding and a very early Neolithic awareness of precession to be the case for all societies in the world. Anecdotally, de Santillana and von Dechend started their investigation in order to disprove Immanuel Velikovsky's claims, as described in his book *Worlds in Collision* (1950), of a series of catastrophic contacts between the planet Venus and Earth in 1492 BC.

Dwardu Cardona, in *God Star* (2006), furnishes a major update of the earliest mythological recollection from worldwide sources.

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Note 5 --

"Myth narrates nothing," writes Jean Markale in *The Celts, Uncovering the Mythic and Historic Origins of Western Culture* (1978), refuting Mircéa Eliade. We all too readily resort to using metaphors, since "metaphor" forms the basis of all our thinking and some people will insist that the metaphorical is *the only* interpretation of myth. It is all too easy to slip from similes to metonymies or synecdoches. Leroy Ellenberger's 1994 critique of Talbott's book, *The Saturn Myth*, reads, in part:

"He [Talbott] insists on literal interpretations of texts ... to the exclusion of metaphor and many other modes of expression."

-- Usenet talk.origins group, 1994

However, Talbott is correct in attempting to avoid metaphorical interpretations. He is certain that the texts deal with descriptions of actual events. Yet, as a reader, you will notice that the Saturnian researchers often invoke metaphors when they are uncertain of the physical events or processes which are being described by ancient texts.

I will insist later in this text that our ancestors were largely incapable of abstract metaphorical expressions until the first millennium BC, except for similes ("A is like B"). Expression of more complicated tropes was absent, despite the obvious fact that new words of any language are developed through metaphorical extensions.

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Note 6 --

As I have already pointed out, the reaction to *Worlds in Collision* was absolutely volatile, especially from the scientific community for whom the ideas expressed by Velikovsky countered all the "scientific narratives" that they had grown up with as children and as members of the establishment and had accepted as invariant truths. The following is a recounting of the personal reaction by John Godowski, an engineer.

"I opened the book to somewhere in the middle, read about half a paragraph, and I was stunned, astonished, and violently angered! No book had ever before or since provoked such a violent response from me -- I was furious!"

"Like some warped version of a Greek myth gone literally mad -- written in a scholarly tone no less! With Footnotes! That was even worse! How could anyone with even the intelligence to put a decent sentence together actually stoop so low as to write such a thing? Was he a Crackpot? Out of his mind?"

"Didn't he know about the billions and billions of years and the nebular theory of solar system formation? He couldn't have had an eighth grade education and not known! Therefore he must have known this was Totally False and Impossible before he ever put pen to paper."

-- John Godowski, quoted by Robert Fritzius at datasync.com and found at [\[http://www.skepticfiles/evolute/velikovp.htm\]](http://www.skepticfiles/evolute/velikovp.htm).

Ten years later Godowski was convinced otherwise.

Alfred de Grazia, in the introduction to the second edition of *The Velikovsky Affair* (1978), wrote:

"Is there nowhere an anti-Velikovsky treatise of serious consequence? the answer, regrettably, is still 'no.' Not in general nor even in a special

discipline such as astrophysics or archaeology. Thousands of scientists and scholars have impugned his work. A few have stepped up to bat against him or one of his team: they put on airs; they dance about; they come up unprepared; they take blundering swipes at the ball; they strike out."

In the same book, Livio C. Stecchini wrote:

"In spite of the variety of emotional expressions, the greatest number of reviews written by natural scientists, when reduced to the scientifically significant points, repeat monotonously the same general arguments. They appeal to the 'laws of nature' without any further specifications, and keep iterating the names of Newton and Laplace, as if they were an incantation, without referring to any specific passage or section of their works."

De Grazia further confessed:

"My own interest in Velikovsky stemmed in part from the hysterical scientific reaction to his ideas -- a reaction unique in this century when books proposing unorthodox ideas swarm, are ignored and sink without a trace."

-- from "Cosmic Heretics (1984)

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Note 7 --

Venus was, without a doubt, on an elliptical orbit, and did cross Earth's orbit in an earlier era. Such an orbit can be calculated or estimated. More on this in following text. However, it never came close to Earth. If it had, we would not be here today. "Coming close" is not a condition for an electric interaction. Minor interaction will happen when plasmaspheres graze, at 20 to 30 planet diameters for adjacent passing planets with magnetospheres or atmospheres. Major electrical interactions only happened when plasmaspheres line up (in line with the Sun). These have happened at distances of 10,000,000 and 20,000,000 miles (16,000,000 and 32,000,000 km).

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Note 8 --

Sudden changes in orbital periods can be explained by the electric field force experienced by two planets as their plasmaspheres touch and merge, a very

infrequent condition. The seismic disturbances on the crusts are due to repulsive electric impulses. These were experienced at considerable distances (millions of miles for Venus), but were brief, soon replaced by declining attractive force, and followed by electric arcing. More on this in a following chapter.

Planetary orbits are ellipses. Ellipses have two centers, called nodes, defined so that the sum of the lines drawn from the two centers to a point along the orbit always has the same value. One of the centers of an orbit is located at the Sun. The other center is located away from the Sun. The ellipse of the orbit slowly rotates in space, which means that the node located away from the Sun moves in a circle around the Sun. This describes the precession of the orbit (the rotation of the second nodal point). Currently the apsidal precession of the Earth's orbit takes an estimated 112,000 years. (This is to be distinguished from the precession of the equinoxes.)

Most of the changes in planetary orbits are due to the slow rotation of the second node of the elliptical orbits. But changes in ellipticity were also experienced. The change in shape in 685 BC (the astronomical date, corrected for the 4-year error in Eastern Mediterranean chronology) involved a displacement of the Earth's aphelion.

The orbits of two planets will come closer together in time, and then separate again, as the individual orbits precess. The orbits of Earth and Mars are currently (circa AD 2000) aligned to a close approach, although still separated by a minimum of 30,000,000 miles (48,000,000 km). This close approach of Earth to Mars is not expected to happen again for 60,000 years.

As I will make clear later in this text, a "close approach" is not a likely condition for a planetary interaction. It is the alignment of two planets so that their plasmaspheres line up, which results in the destructive electric field interaction between planets.

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Note 9 --

"Close approach," as it will turn out as developed in these pages, is 10,000,000 to 20,000,000 miles (16,000,000 to 32,000,000 km). The same long reach of Venus has been implicated in the Spanish Flu epidemic of 1918. The suggestion is that the Sun, Venus, and Earth would have been in line a few months earlier -- with the Moon as an intermediate connection. This can be shown to hold for recent viral epidemics. Thus the suggestion that the 30,000,000-mile

(48,000,000-km) tail of Venus could affect the local incubation of insects is not altogether without precedent. For more details on the virus connection see the Appendix "Venus and Epidemics."

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Note 10 --

Immanuel Velikovsky *Ages in Chaos* (1952), *Peoples of the Sea* (1977), *Rameses II and His Time* (1978). Two additional texts, *The Dark Ages of Greece* and *The Assyrian Conquest*, were never published. The unpublished material may be found on line at [\[http://www.varchive.org\]](http://www.varchive.org).

See Peter James *Centuries of Darkness* (1991) for work coming out of the SIS on an Eastern Mediterranean chronology.

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Note 11 --

Cardona is probably correct that the Earth could have existed within a plasma discharge (in this case like a "rarefied atmosphere") of a brown dwarf star. The temperature of the plasma might be quite high, but of such low density that it would be equivalent to "outer space." The border conditions of the electric field surrounding the Earth would isolate and protect the Earth's atmosphere from external conditions. Today the Earth exists under exactly the same conditions within the plasma discharge ("atmosphere") of the Sun.

Titan, one of the moons of Saturn (today), and one of the largest moons anywhere (somewhat smaller than Mars), has a nitrogen atmosphere and a cloud cover. It was presumed to have rainfall, for, as reported by the Very Large Telescope (VLT) of the European Southern Observatory (ESO) in 2004, there were possible "huge surface reservoirs of liquid hydrocarbons" under the heavy clouds. The NASA/ESA Cassini spacecraft descended to Titan's surface in early 2005, to find it dry, but with an atmosphere of methane, nitrogen, and carbon dioxide. Titan exists within the discharge of plasma and radiation of Saturn.

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Note 12 --

There are Mesopotamian influences in Egypt (bottle seals and other signs of trade) up to about 3100 or 3000 BC, at least in the Delta region ("Lower Egypt"). But they stop suddenly, and Egypt takes a completely independent course in its

subsequent history. Trade may have stopped because of the flooding of the Nile delta and lower Mesopotamia.

Talbott's sources were initially from what is known as *The Book of the Dead* -- a compilation of spells, many of which are descriptive of the acts of the deities involved, mostly from after 2349 BC.

Talbott had been confronted with a confusing set of data in trying to make sense of Egyptian records, for the priesthood of Egypt kept track of every element of all the varied images in the sky viewed over a period of thousands of years, and all elements and symbols were superimposed on each other. This was the result of a democracy of Gods and religious practices among the many separate nomes (the 40 distinct temple districts of Egypt). The numerous variations of spells of the Egyptian *Book of the Dead* parallel this confusion. The welter of details that Talbott managed to extract suggested bizarre and inexplicable physical conditions that were almost unbelievable.

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Note 13 --

Jupiter was probably held to be Seth initially, but understood soon as the mummified Saturn in the form of Osiris. Between 3000 BC and 2700 BC it is Mars/Horus who loomed largest in the sky and in religious practices. In the 4th Dynasty, after 2600 BC, when the religious climate changes, Jupiter is recognized as Re, the Midnight Sun.

The first devotions to Osiris do not start until after 2349 BC. With that date the first pyramid texts appear as part of a series of spells which eventually become recognized as the *Book of the Dead*.

The note about Saint Paul is from the literature of the development of Christian theology during the first century AD and is a modern reading. The background for salvation theologies is actually much broader than this and is developed in a later chapter.

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Note 14 --

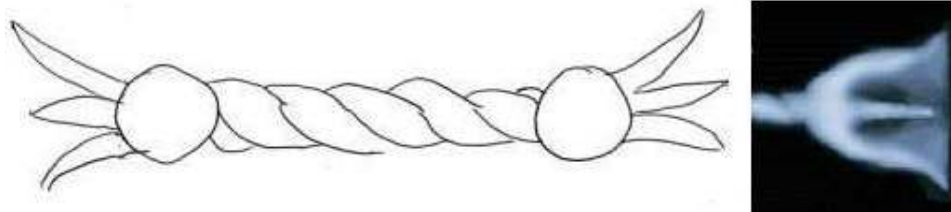
Site of Laszlo Kortvelyessy at <http://www.the-electric-universe.info>.

See an endnote to the previous chapter for additional plasma-related websites and some books.

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Note 15 --

The twisting of Birkeland currents occurs in arc mode and high-level glow mode. There are additional configurations in high-level arc mode, such as the separation into stable patterns of 28 or 56 bundles. When traveling long distances in arc mode, the streams tend to disconnect from the source (because of a voltage drop at the source) and continue to travel with a twisted body, collapsed ball-shaped ends with chalice shaped extensions with a center column (looking like a lily) at both ends. The lily shapes tend to look like three fork tines when seen from the side where the plasma would appear to be denser.



[Image: Full plasmoid bolt. Left illustration by J. Cook. Right image after Dave Talbott and Wallace Thornhill.]

These are known as "plasmoids," and can travel millions of miles. Plasmoids are depicted in sculptures of the gods in antiquity in Europe, Asia, and Mesoamerica.

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Note 16 --

See Thomas Gold "Electrical Origin of the Outbursts on Io," *Science*, 206:1071, 1979. The electric nature of the "eruptions" was backed up by Anthony Peratt and A. Dessler in "Filamentation of Volcanic Plumes on the Jovian Satellite Io" (in *Astrophysics and Space Science*, number 144, 1988), although they have a somewhat different take on what specifically is happening with Io, based on the shape of the outbursts. The paper identifies the plumes as plasma, and thus electrical.

Most, if not all, of the published establishment material insists on an interpretation based on an analogy with terrestrial volcanism, despite the fact

that every aspect of the expected consensus for volcanic activities is missing.

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Note 17 --

For a discussion of interplanetary electric fields and plasma, the exterior negative charge (surface charge) of planets, and the electric characteristics of the Sun, see an article by [\[Ralph Juergens\]](#), "Reconciling Celestial Mechanics and Velikovskian Catastrophism," originally presented in *Pensee* (1972). For a more recent general popular discussion, see the essay by [\[James Hogan\]](#) from his book *Catastrophes, Chaos and Convolutions* (2005).

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Note 18 --

Thornhill's and Talbott's ideas were expressed at the Kronia Nevada Conference of July 2001. My take on this is that Saturn orbited the Sun, together with Earth and the other planets, for about 1000 years. This ended in 3147 BC.

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Note 19 --

In the book of Genesis, God separated the waters below from the waters above by creating the dome of the sky. This is the appearance of the northern stars in 4077 BC, when the glow mode coma of Saturn collapses. The "waters above," which had been the plasma outpouring from Saturn to the surrounding space, remain "above" as the rings of Saturn and a stream of water, or what looked like water, connecting to Earth.

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Note 20 --

Only Mercury revolves at the Sun's equator, although it also has the most elliptical orbit of any of the planets, doubling its distance from the Sun during each orbit. The remaining planets today have orbits differing by a few degrees from the "ecliptic" -- defined as the plane of the Sun and Earth, and 7 degrees off the Sun's equator. Pluto is off the ecliptic by 17 degrees and on a wildly eccentric orbit. I have never considered Pluto a planet.

I should also add that the "flattening" of orbits may not strictly be required: because gravity represents a spherical field, the flattening of orbits is not due to

the gravitational influence of the Sun. It is the minor tugs that larger planets exert on others with each passage which forces a flattening of orbits over an extended period of time.

The location of all the planets to a band extending only a limited amount above and below the Sun's equator is a phenomenon not defined by gravity. It remains undefined. The same inexplicable phenomenon of being grouped at or near the equator is seen in the rotation of nearly all planetary satellites of the planets (and almost all in the same direction), including the satellites of Uranus, which lies on its side with respect to the ecliptic.

In fact, we would expect the planets to circle the Sun much closer to its equator, if that is the rule for travel around a primary, and if they had been in their current positions for 4 billion years. It would be suggested that they have not been in their current locations all that long, although admittedly their orbits are also separated from each other by absolutely enormous distances, unlike planetary satellites.

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Note 21 --

In the next chapter I have made an estimate of 15,000 years for the time it would take Saturn to pass through (entering and exiting again) the plasmasphere of the Sun, which extends (it is estimated) about 100 AU, that is, 9,000,000,000 miles (14,000,000,000 km) from the Sun. This is based on Saturn having an orbital period of 27 million years, and an orbital diameter of 90,000 AU. Paleontologists have estimates 10,000 years for each extinction event, where I have 15,000 years.

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Note 22 --

Tom Van Flandern, in *Dark Matter, Missing Planets and New Comets*, allows such a loss of satellites by a body passing close to the Sun. The book is subtitled, *Paradoxes Resolved, Origins Illuminated*.

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Chapter 4: The Nevada Conference.

\$Revision: 42.7 \$ (nevada.php)

Contents of this chapter: [\[Nevada Conference\]](#) [\[Initial Conditions\]](#)
[\[A Comet's Path\]](#) [\[Ice Cover\]](#) [\[Seasonal Plants\]](#) [\[Periodic Extinctions\]](#)
[\[Below the Pole\]](#) [\[New Postulates\]](#) [\[Endnotes\]](#)

2001 Nevada Conference

On a whim I attended a conference in Laughlin, Nevada, in August of 2001, given by Kronia, the organization with a website (since disappeared) of the same name, organized by David Talbott and others. The conference dealt with aspects of the Saturnian Polar Configuration expanded on in these pages.

I was familiar with the work of Immanuel Velikovsky, and the subsequent work by David Talbott. Velikovsky, in *Worlds in Collision* (1950), described how Venus interacted with Earth in 1492 BC. Talbott, in *The Saturn Myth* (1980), established that, in a more remote era, a large globe had stood above the Earth at the north horizon. Talbott's book is overwhelming in detail, and convincing in its thesis (even though he would interpret some details differently today). The conference also brought out information by Wal Thornhill on plasma in the Universe as I have noted earlier. Others in attendance were Don Scott, Dwardu Cardona, Anthony Peratt, and Rens van der Sluijs.

I came away from the conference unsatisfied. There was no cohesive chronology put forth, and the mechanics of an intersection of Saturn and the Solar System lacked elegance. I decided to start this text (as web pages) in an effort to put things in order and to develop a cohesive chronology. However, initially the lack of an adequate model of the celestial mechanics was an obstacle.

After the conference I wrote up the information I had available (September of 2001) and then the site lingered as I repeatedly got stuck. I backed up to study a few things. I had no problem with the plasma theories (I'm an electrical engineer). What was missing were concepts and data from other disciplines. I needed a broader base to work from, and ended up spending time reading or

rereading biology, evolution, geology, and archaeology. I read books supporting orthodoxy as well as books at the edge of speculation.

Problems with the Initial Conditions

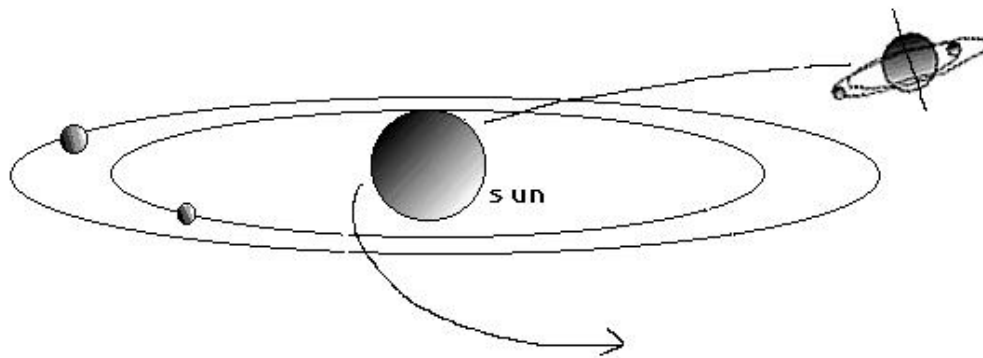
By mid-2003, I knew that many of the statements I had made were not supportable and that a new explication was needed. What needed to be reinvestigated was the idea that Saturn, together with Earth, could enter the Solar System in about 3000 BC and end up in a circular path in a matter of 300 years. That just didn't make sense.

I started rewriting in February of 2004, and finished in draft form a year and a month later, March 2005. Now, in the spring of 2014, I see that additions, word edits, and data tweaks have continued for nine more years.

As I have already pointed out in the previous chapter, there are some problems with the "corkscrew entry" hypothesis:

- Objects that enter the Solar System don't start on circular paths; they travel on extremely elliptical paths. The comets bear witness. Circularization will happen eventually, but it might take millions of years.
- Earth needed a tilted axis with respect to its orbit to account for a persistent ice cover at the poles, extending back 30 million years. That would not have been possible if the Earth had been part of the Saturnian System until 3400 BC, under the condition of being an equatorial satellite.
- In fact, it looked as if Earth has experienced seasons for a very long time, at least 200 million years, and therefore Earth, with its tilted axis, had to have rotated about the Sun at least that long. A tilted axis would not be at all likely for Earth as a satellite of Saturn.
- Also, I could not initially imagine how Earth might have ended up suspended below the south pole of Saturn -- especially as an initial condition. Planets "left behind in the wake" is just absurd.

I juggled these problem areas simultaneously, often falling asleep imagining Saturnian orbits and Earth conditions. I'll address the problems below.



not to scale

[Image: A diagram of how Saturn and its planets might have entered the Solar System. Illustration by J. Cook.]

A Comet's Path

My first objection was to the suggestion of a 300-year period for Saturn to "corkscrew" into an orbit about the Sun, approaching the Solar System from below the Sun's equator. In Thornhill's model this would have happened with Earth and Mars in tow below the south pole of Saturn. [\[note 1\]](#)

If Saturn were to be introduced into the Solar System, it would be because of the gravitational attraction of the Sun. Saturn would enter on a comet's path, headed straight to the Sun, like all comets, swing tightly around the Sun, and disappear again into the far reaches of space.

Last, it would not matter from which direction the Saturnian System first approached the Solar System. Over time, Saturn would have leveled its orbit to the ecliptic due to gravitational interactions with the Sun's planets. This is especially true if, as I will show later, Jupiter was probably located at 0.7 AU, and would have gravitationally changed Saturn's wild orbit whenever Saturn closed in on the Sun. Additionally, the planets Earth and Mars traveling with Saturn as it first approached the Solar System -- 500 million years ago -- would have rotated at the equator of Saturn, as do the planets of the Sun, and as do the satellites of all the planets -- not below the Saturnian south pole.

With Saturn on an orbit which always turned close to the Sun at each approach, a satellite orbiting Saturn would have a good chance of switching orbits and

being lost to the Sun, that is, going into a Solar orbit. For Earth this seems to have happened about 200 million years ago, after the Permian.

At some point on Saturn's swing around the Sun, a satellite of Saturn would come to a virtual standstill -- where the gravitational pull of the Sun could overcome that of Saturn. This would most likely happen when the planet was directly between Saturn and the Sun. The forward motion of the Saturnian System as a whole would carry the planet into an orbit around the Sun. [\[note 2\]](#)

Thus, as my new starting point, I assumed that the Saturnian System intersected with the Solar System at some point in the remote past with a number of planets -- Earth and Mars, at least, and perhaps others -- as satellites on equatorial orbits around Saturn. Some satellites were lost to the Sun, to rotate independently as planets of the Sun. It is likely that this happened over a very long period of time, enough time, in fact, so that Saturnian planets would end up on orbits flattened to the equator of the Sun.

Ice Cover

The Earth has an ice cover near the poles. The ice of Antarctica is estimated to be 30 million years old. Within the Arctic north polar region there is glacial ice in Greenland (but not elsewhere) estimated to date to three million years ago. There has been no other glaciation on Earth since the end of the Permian, 250 million years ago. [\[note 3\]](#)

I initially wanted to account for the ice, following Immanuel Velikovsky's suggestion, with the heat generated by a shifting lithosphere. His suggestion, however, was based on a "close passage" by Venus. Under this imagined condition the lithosphere would be expected to crack, bulge, and split open, and the heat generated would cause evaporation of oceanic water to the point of saturating the atmosphere. The saturated atmosphere would cause endless rains, but somehow limited to Greenland and North America.

This didn't make sense, although Velikovsky's suggestion actually made much more sense than many other theories, as, for example, basing northern glaciation on the fact that it snows constantly at the North Pole (it does not), or invoking Milankovitch's cycles of changing global temperatures (but cold temperatures do not make glaciers), or the long-term changes in the Sun's sun-spot cycle. None of these causes hold up.

I had much less of a problem with Velikovsky's suggestion than with these other theories and I allowed it to stand as a possibility. Perhaps, as he suggested, gravitational forces could wrench the Earth's lithosphere when Saturn came to perihelion with the Sun. But there were some drawbacks to this theory which continued to nag at me. For one thing, polar glacial ice is not frozen rain -- it is compacted snow. Additionally, northern Asia has never been glaciated, even though it is clearly within the Arctic Circle just like Greenland.

Whatever the cause of the glaciation, we can account for its persistence (as opposed to its deposition) only by having the Earth revolve around the Sun with the polar axis tilted at an angle. At a minimum, you would need a winter season of no sunlight (as we have today) to retain snow and eventually compact it to ice. If Earth had been on an equatorial orbit around Saturn until recently, there would have been no seasons -- since the axis of Saturn and Earth would almost certainly have pointed in the same direction of space, and there would not have been the dark polar winters. The same is true if Earth had been below the south pole of Saturn until 3400 BC. Then the North Pole would have been directly lit by Saturn and would have been warmer than any other part of the planet. This cannot have been the case. The Greenland glacier is 3 million years old. (I'll offer a resolution further below, and discuss glaciation in the next chapter.)

Seasonal Plants

The seasonal plants and even the diurnal habits of nearly all the animals on Earth argue against the Earth having been below the south pole of Saturn up until very recent times (as Thornhill suggested), or having always existed within Saturn's coronal glow discharge envelope where there would be no difference between night and day (as Cardona suggested).

The Earth might have been a satellite of Saturn at one time, but most likely that relationship had ended a long time ago. How long ago? Talbott at one time suggested the Eocene, 50 to 60 mya (million years ago). The Eocene makes some sense. It is the age of the expansion of mammals, the spread of grasses, and the takeover of modern plants -- all seemingly dependent on seasons. It also falls after the K/T boundary -- the "giant meteor impact" in the Yucatan, 63 million years ago, which marked the eventual demise of the dinosaurs and the end of the Cretaceous period. This certainly represents the end of a biological era for Earth.

The earlier plant cover of the Earth (the Carboniferous, 345 to 300 mya) consisted of slow-growing, heavily armored, and hard (siliciferous) plants. Pine trees (gymnosperms), which date from after that era (the Jurassic, 200 to 140 mya), even today take three years to come to seed, and without flowers. A later period (the Cretaceous, 140 to 65 mya) saw the development and spread of fast-growing, soft-bodied, seasonal flowering plants.

Although the end of the Cretaceous, 65 million years ago, might be suggested as a division between two biologically distinct periods, this is not early enough.

Grasses first developed during the Cretaceous era (140 to 65 mya), the first flowering plants (orchids!) date from the yet earlier Jurassic (200 to 140 mya) or Triassic (250 to 200 mya) periods. If we are to look for a time when Earth first joined the Sun's planets, it would have to be earlier yet, perhaps in the period preceding the Triassic, the end of the Permian, 250 million years ago. The end of the Permian is a likely candidate, for this time also saw the largest extinction ever experienced. After the Permian, life on Earth started over. [\[note 4\]](#)

I am suggesting, therefore, that at the end of the Permian, Earth was still orbiting Saturn; the Earth would have had no seasons, since the Earth's rotational axis would have been parallel to Saturn's axis of rotation. At the time of the Permian extinction, the largest extinction ever, 99 percent of all aquatic species disappeared and 95 percent of land species. This was accompanied with equatorial glaciers. It is this last, plus the extreme (and inexplicable) nature of this extinction which suggests that Earth would still have been on an equatorial orbit with Saturn at the end of the Permian.

period/epoch	start	features
-Quaternary	1 mya	glaciation in Europe and America
-Tertiary		
pliocene	12 mya	modern plants and animals, Rockies
miocene	30 mya	large mammals, Alps, Andes, Himalayas
eocene	65 mya	mammals dominate, primates
		extinction of dinosaurs at 65 mya
-Cretaceous	140 mya	early mammals, flowering plants, grasses
-Jurassic	200 mya	pinos, birds, small mammals
-Triassic	250 mya	dinosaurs, orchids
-Permian	300 mya	first reptiles, end of large trees
-Carboniferous	345 mya	fern trees, pinos, insects, amphibians
-Devonian	405 mya	fish, first land plants
-Silurian	425 mya	corals, scorpions

-Ordovician	500 mya	marine invertebrates
-Cambrian	600 mya	snails, sponges, trilobites
Precambrian	3100 mya	single cell forms, sponges, algae
(creation)	3900 mya	(oldest rocks)

Dates vary; these are from William Matthews, *Fossils* (1962)

Periodic Extinctions

The Permian had produced the forerunners of both dinosaurs and mammals. The close of the Permian is marked by a drying of inland seas, equatorial glaciation, and mountain building (the Appalachians and proto-Rockies).

Current thinking is that the land extinctions of the Permian were caused by massive lava flows which happened in Siberia, accompanied by increased carbon dioxide and methane gases. As the methane oxidized (along with organic material from the lowered inland seas), carbon dioxide increased even further and oxygen levels dropped. But these particulars are not at all certain.

Some seven lifeless layers of sediment (wind-blown sand and dust) follow each other at the end of the Permian. This is today visible in South Africa's Karoo Desert. Today these layers are estimated to span 100,000 years, but this time span is based on guesses at the sedimentation rates. I doubt if all of it extended over more than a period of a few thousand years. The Permian depositions of material and extinctions were perhaps serial but they were rapid. The extinctions at the end of the Permian were not the result of a single, or occasional plasma contact with Saturn, but the result, I would guess, of a nova event.

I think that this happened as Earth was still in orbit around Saturn for in this instance it is certain that the equatorial regions of Earth were hit. Shallow inland seas were vaporized and a dense cloud cover followed which cooled the Earth. The falling snows built glaciers in Central Africa, India, and equatorial South America. The nova event might have been initiated by a visit of Saturn to the inner Solar System, but could have continued well beyond that. [\[note 5\]](#)

At this point, harking back to the earlier concept (by Velikovsky) of the possible jolting of the Earth in the periodic visits of Saturn to the Sun, I realized that the frequent and periodic extinctions of the Paleozoic (the period since the Cambrian) might be due to more than just geological upheavals.

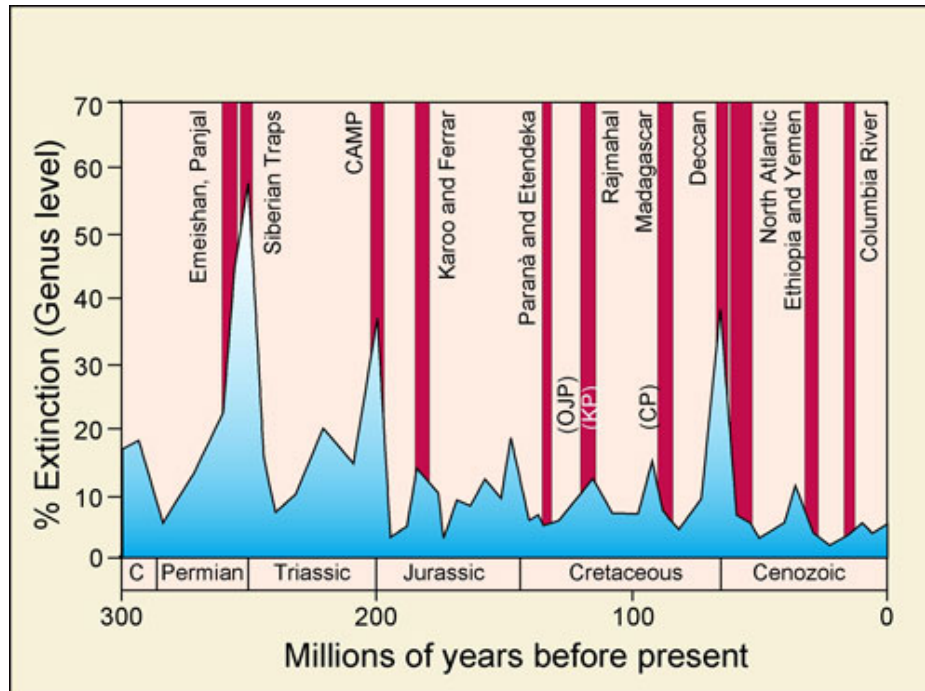
Robert Bakker has put forward a theory of simple causes for dinosaur extinctions -- changes in climate, the spread of species hostile to others into new

territories, the spread of viral or bacterial infections. This suggests that geological changes were not *per se* the cause, although these happened with some regularity. Of course, new territories would open up with the periodic orogeny (mountain building) and the frequent retreats and advances of the inland seas (as in Central North America). But it would seem that these theories also could not explain the periodicity of extinctions -- events which were sudden and wholesale, followed by millions of years where nothing happened. [\[note 6\]](#)

If Saturn's occasional return to the Sun were to have a worldwide impact on the Earth, there had to be some mechanism to account for it, other than possible geological disturbances. Mountain building, or the draining of inland seas, is extremely slow from a biological point of view. Biological organisms will adapt during the millions of years that it takes to raise mountains (if mountain building indeed takes millions of years). What was needed to explain the extinctions was a more sudden cataclysmic event.

Then I realized that massive plasma discharges could have been almost totally responsible for the extinctions. Unlike a comet, however, a tail would not form as Saturn approached the Sun. Instead, because of its enormous size and the extended time spent away from the Sun at the much higher positive electric potential of a star, Saturn would attempt to gather electrons from anything nearby, whether that was Earth still in orbit around Saturn, or Earth in a close orbit around the Sun, or any of the other planets of the Sun. [\[note 7\]](#)

It would not matter if Earth were still a satellite of Saturn, or had become a planet orbiting the Sun. The plasma discharges of Saturn, as it neared perihelion with the Sun, would affect Earth in either case. In fact, the lightning discharges would probably start when Saturn, with Earth as a satellite, initially crossed the boundary of the Sun's plasmasphere (heliopause) at a distance of about 100 AU from the Sun, and would continue until Saturn again exited. During this time Saturn would have blazed through the skies not unlike a comet, but considerably different and much more compact. This assumes, as the reader can see, that I am suggesting a very long period for Saturn.



[Image: Extinctions since the Permian. After NASA, N. Short, <http://rst.gsfc.nasa.gov/Sect18/>]

The major difference between the situation of Earth as a satellite of Saturn and Earth as a satellite of the Sun, would be that, if Earth were in orbit around the Sun, the plasma discharges at any time might be of an entirely different magnitude, and thus have an entirely different extinction effect. The effect would also depend on where the plasma struck the face of Earth (land or ocean) and how close Earth was to Saturn as it passed by. As a matter of fact, it is the case that no two extinction events have been alike. Their effect at any one time is completely different from their effect at any other time. The biological extinctions were estimated by Stephan Gould and Niles Eldredge in 1971 at about 27-million-year intervals. [\[note 8\]](#)

The amount of time spent within the plasmasphere of the Sun (where Saturn would have started arcing to other objects), out of a 27,000,000-year period, can be approximated from the ratio of half the circumference of the Sun's plasmasphere and the complete circumference of Saturn's orbit. This calculates to $(2 \cdot \pi \cdot 100 \cdot \text{AU} / 2) / (2 \cdot \pi \cdot 90,000 \cdot \text{AU}) = 0.000555$, one half of one tenth of one percent, representing 15,000 years of the 27,000,000-year period. [\[note 9\]](#)

During any of the later near approaches of Saturn, after the Permian, the Earth would likely have been displaced to a new orbit, depending on how the two

planets approached each other. The new orbit would have had a major effect on the climate. In fact, the biological record indicates that Earth experienced extreme changes in climate, in each case lasting tens of millions of years following each extinction event.

These concepts might be the answer to the "Planet X" theory, which suggests that an unknown planet of very long period caused the mass extinctions of life on Earth at 27,000,000-year intervals since the Cambrian, 560,000,000 years ago. It has been suggested that Planet X would travel at a right angle to the equator of the Sun, that is, circumpolar, since nothing like Planet X has been found in the ecliptic.

Most likely Saturn was "Planet X," and not on a circumpolar orbit but on or near the ecliptic. The extinctions would be caused by changes in climatic conditions coupled with X-rays, UV radiation, and Gamma rays (high-energy photons) lasting for tens of thousands of years. Plasma discharges would certainly be to blame for the last. If we recognize the Yucatan Chicxulub impact crater (65 million ya) as an anode burn mark, it serves as an example of the possible destructiveness of an arc mode plasma contact. (There is evidence that massive lightning strikes produce radioactive products. More on this in the chapter, "Tunguska and Chicxulub.") [\[note 10\]](#)

Below the Pole of Saturn

Lastly, as I mentioned, I could not accept the postulate of the Earth located below the south pole of Saturn as an *a priori* condition. Nothing in all our experience with the paths of planets or satellites indicates that this would be remotely possible as an initial condition at any time in the past. Secondaries revolve around their primaries at the equator of the primaries, they do not hang suspended sub-polar. Yet, I would have to accept the sub-polar configuration at least as a required condition at some later time, for all of the Saturn imagery describes this.

The possibility of Earth being recaptured by Saturn as a satellite is virtually nil. Capture requires a forward motion which not only matches the passing planet, but requires passage on the outward side of the capturing planet (away from the Sun), and then a sudden change in direction and dramatic change in speed to become a satellite. If a planet were to meet Saturn equatorially the planet might be moved electrically into a larger or smaller Solar orbit. It would not end up orbiting Saturn as a satellite.

But if Saturn and another planet could override each other, placing one above the other (which could easily happen because the orbits of all the planets are tilted at different angles), this would be an entirely different condition. This would not change the orbits around the Sun of either Saturn or the planet. They would ride the path around the Sun together.

Tom Van Flandern defines a "gravitational sphere of influence" for planets. The "gravitational sphere of influence" is the region surrounding a planet where a potential satellite would remain to travel with the parent planet, if the speed of travel were within a certain range. Otherwise the satellite would either escape or crash to the planet (as Van Flandern has it). For Saturn the "gravitational sphere of influence" would be reduced as Saturn closed in on the Sun on its elliptical orbit.

The gravitational sphere of influence generally has a radius of about 100 planet diameters (thus about 7,000,000 miles for Saturn -- 11,000,000 km), but decreases in size when near another large mass -- like the Sun. The region near the Sun then becomes the most likely location to accidentally pick up a planet which would remain within the sphere of influence of Saturn as the sphere expanded again on leaving the vicinity of the Sun. Van Flandern has pointed out that this represents probably the only location where the capture or loss of a satellite could happen. (The asteroid belt is another location.)

The planet or potential satellite in proximity of Saturn would thus initially travel along with Saturn because it would find itself within the gravitational sphere of influence of Saturn. It might act as a sort of stationary satellite for a period of thousands of years, with each rotation of Saturn around the Sun. But, as Van Flandern has noted, this would not be an altogether stable location,

But the gravitational sphere of influence is a second order effect. The primary effect is a clash of the electric fields of the two planets after their plasmaspheres are breached. The meeting of planetary plasmaspheres can occur under many conditions, and the results vary considerably. I will describe these as needed in the narrative.

Back to the description of the modifications to Earth's orbit: The described condition would thus leave Earth on the same orbit, but with the orbit perhaps tilted at a different angle. The orbit of the planet would come to coincide with the orbit of Saturn over a period of time. Each additional circuit of the planets around the Sun would continue to slightly modify the smaller planet's orbit. One

needs to remember that Earth is the size of a pea in comparison to the pumpkin-size of Saturn. [\[note 11\]](#)

New Postulates

At this point I started to rewrite the web pages. The following were the new postulates and some corollaries:

- Earth, Mars, and Neptune (and possibly the Moon) were all planets (satellites) of the star Saturn, and had been orbiting Saturn for billions of years since their creation when, shortly before the Cambrian, 560 million years ago, Saturn intersected with the Solar System -- perhaps for the first time.
- Saturn swept around the Sun like a comet, to return every 26,000,000 or 27,000,000 years, still with the original planets in tow, that is, as equatorial satellites.
- Over time, some of Saturn's planets were captured by the Sun. This happened to Earth after the Permian, 250 million years ago. This could only happen to Saturnian satellites on prograde orbits around Saturn.
- The return of Saturn at 27,000,000-year intervals was responsible for the periodic extinctions which the Earth has experienced since the Cambrian. On traveling through the plasmasphere of the Sun, Saturn would attempt to discharge to any nearby objects, including, of course, Earth. (This would be true whether Earth traveled with Saturn as a satellite, or Earth was already orbiting the Sun.)
- At this point it should be made clear that the ability of Saturn to attract other planets, especially the inner planets, has to be the result of Saturn entering the Solar System with an exceedingly high positive charge. It could also be suggested that Earth may have been captured and released a number of times in the last few million years.
- Over a much longer period of time, extinctions were most likely caused by electric field attractive or repulsive forces which changed the Earth's orbit plus massive electric discharges (arcing) from Saturn, perhaps only as Saturn reached perihelion with the Sun.
- The specificity of the extent of many extinctions can probably be attributed to the different locations of the strike point of the arcing from Saturn (on land, shallow sea, or ocean), and the fact that at different times the contact would have varied with the chance location of Saturn and the position of Earth.

- Saturn may have been responsible for all the speciation after the Cambrian, and especially the complex species which have developed since that time.
- Speciation probably took place during or after every extinction period, although it might have taken many thousands of years before new species stabilized and would show up in the record.
- The fact that Saturn was never deflected by the Solar System planet Jupiter would be explained by the fact that in 560,000,000 years Saturn would have entered the Solar System only 19 or 20 times.
- Once the period of Saturn was significantly reduced (6 or 3 million years ago) it would have come closer to the Sun more frequently (of which we have both physical and written records), smaller planets of the Sun would then have a greater chance of being captured into a sub-polar or supra-polar orbit by Saturn (the Moon never was captured). In fact, it would be likely that over time all the smaller inner planets would have been captured in this manner. Only planets further away from the Sun would be safe from this because they would be less likely to encounter Saturn.

With the above list as a starting point, I could proceed to visualize the interaction of Saturn and Earth after 10,900 BC, and have some confidence of being on the right path toward a connected narrative. At the same time a 4-billion-year vista of the past suddenly opened up.

I hope the reader will understand that what is presented here is conjecture, although it is supported by a very large measure of common sense and by concepts which have only come into more general awareness in the last decade. Although for the most part we know next to nothing about the specifics, it should now be possible to chart a course of likely events and probable dynamics which matches the sparse information we have. The new element added to the normal planetary dynamics is, of course, the part played by planetary plasmaspheres, electric field forces when these intersect, and the attendant electric discharges.

What I will attempt to do in the following chapters is to plot the progression of changes for the planets of the early Solar System, using the simplest and most likely explanation which makes the case at any point and sets the stage for following events. This removes much of the inexplicable "changes in orbits" for which the catastrophism of Velikovsky has been faulted. I hope to bring the story back to the normal expected interactions between the planets of a star. In fact, most of the events after 3147 BC reduce to a series of small changes in a

set of nearly identical orbits of two groups of two planets, Mercury and Mars, and Venus and Earth -- but generally at very long intervals.

In this chapter I have hinted at the 500-million-year long history of the repeated interactions of Saturn with the Solar System. In the next chapters I will show that Saturn probably was the cause of the development of higher life on this planet, and in subsequent chapters tell how our remote ancestors experienced Saturn in the skies above Earth -- and recorded this in the Americas, probably since 41,000 BC.

This information would set the stage for the eventual capture of Earth to below the south pole of Saturn. I will address this period, which started in about 10,900 BC, a few chapters hence. Looking forward, the following will be discussed more or less in order.

- 11,900 ya -- shock in North America, fire, demise of megafauna, creation of the Great Lakes, 1500 years of shadow. 225-day year. Start of the Peratt plasmoids in the south.
- 8347 BC - End of the period of the plasmoids.
- 5800 BC - Black Sea flood.
- 4077 BC - Saturn lights up.
- 3147 BC - World flood, Jupiter becomes a steep mountain. 240-day year.
- 3067 BC - 2750 BC - Mars and Mercury close in on Earth 10 times.
- 2860 BC - Jupiter enter the asteroid belt, loses its mountain form.
- 2349 BC, September 8 - Contact by Venus, fall of the Absu, appearance of the Moon. 260-day year.
- 2193 BC - Third contact by Venus, 200 years of drought. 273-day year.
- 2150 BC - Jupiter catches fire.
- 1936 BC - contacts by Mars and Mercury; Sodom and Gomorrah destroyed.
- 1492 BC, April 19 - Disturbances of Earth by Venus: Exodus, 20 years of cloud cover, 360 day year, Typhon, axial inclination to 30 degrees.
- 1442 BC - The sun stands still for Joshua (Venus).
- 806 BC - 687 BC, nine Mars contacts (plus Mercury).
- 776 BC, February - Mars, Venus, Mercury ballgame.
- 747 BC, February 27 - Mars jars Earth. 365.25-day year.
- 686 BC, March 23 - Mercury jars Earth, second Tower of Babel.
- 685 BC, June 15 - Venus and Mercury (Phaethon) start to blaze.
- 685 BC, July 9 - Jupiter wakes from death.
- 685 BC, July 14 - Jupiter releases a plasmoid bolt.

- 685 BC, July 25 - plasmoid bolt lands at the Sun.
- 685 BC - Earth's polar axis inclination changes.
- 684 BC - A new Great Year starts on March 8th.
- AD 600 - Red ring of the Absu fades.
- AD 1700 - Last sprinkling of Absu dust.
- AD 1840 - Ecliptic pathway last seen.

Don't let anyone suggest that the recent history of the Earth has been one of a few simple transitions. It is a miracle that we humans survived at all.

Endnotes

Note 1 --

The corkscrew idea was reiterated (to me) by the Saturnian people (of Thunderbolts.info) as late as summer of 2007. In the 2007 book by Wallace Thornhill and David Talbott, *The Electric Universe*, there is an illustration of circular and spiraling magnetic lines, shaped like a funnel, located above (and below) the axis of the Solar System, with the Sun as the main focus (attributed to S. T. Zuess, 1999). The magnetic lines spiral toward the Sun, and are reminiscent of the proposed spiral (corkscrew) path taken by Saturn on approaching the Solar System (but from below the Sun). This book illustration would be a slim basis for insisting on a spiral path for a planet. Certainly comets elevated above the ecliptic do not spiral into the poles of the Sun.

Dwardu Cardona, in a series of four books (see the Appendix "Book List"), also maintains the thesis of a single entry of Saturn (with Mars and Earth) into the Solar System.

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Note 2 --

I am assuming that all of Saturn's satellites also rotated about Saturn in a prograde direction (counter clockwise as seen from above its North Pole), as they do today.

The prograde direction of Saturn's travel around the Sun is probably critical, because a satellite circling Saturn would describe an epicycloidal path in moving around the Sun with Saturn, making it look as if at some point it were standing still. The "stand-still" nodes for this path are located between the

passing Saturn and the Sun. And, in fact, at these locations, the satellite would still have the forward speed of Saturn, appropriate for a new orbit around the Sun at that location, but reduced somewhat by the orbital speed of the satellite in the reverse direction around its planet.

If the satellites of Saturn had rotated retrograde, the stand-still nodes would be placed on the outside of the orbit of Saturn. There are of course two additional possibilities, based on an initial orbit of Saturn in a retrograde direction around the Sun.

Today we see very little "flattening" of orbits. This can be blamed on the wide dispersal of the planets, in effect minimizing their gravitational interactions. But as long as Jupiter remained within the realm of the inner planets (before 3147 BC) there would have been much greater gravitational interactions. Thus it is likely that during this earlier period the orbits of the inner planets (plus Neptune) were flattened to the equator of the Sun, or, more likely, to the orbit of Jupiter. This could have extended back 500 million years for some planets.

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Note 3 --

Ice cores in Greenland only show a series of about 120 thousand years for the current northern glaciation, however. Antarctic cores from Vostok stopped at 414,000 years ago.

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Note 4 --

There is a greater variety (and geographic distribution) of orchids than any other flowering plant -- on the order of 40,000 or 70,000 species. Orchids are found from the Arctic to the tropics.

Grasses grow from the bottom, rather than the top, as other plants do. This is a biological solution to being grazed, just as trees attempted to move away from ground level. Most earlier plants had attempted to protect themselves by being tough and difficult to chew.

Before grasses became well established, before the end of the Cretaceous (and the end of the age of the dinosaurs), when the wind blew dust was everywhere. It is these dust storms which have provided us with the fossils of that era. Sands and volcanic dust have piled up in some areas to depths of thousands of feet.

The remains of animals covered in thick layers of wind-blown material cannot be destroyed by scavengers.

After the spread of grasses the sedimentation rate dropped. It is one of the noted differences between the periods before and after the Cretaceous. We have found far fewer fossils from this later era.

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Note 5 --

See Peter Douglas Ward *Gorgon: Paleontology, Obsession, and the Greatest Catastrophe in Earth's History* (2004), which deals with the Permian land extinction of 250 million years ago. This is a personal account of ten years' research for clues to the causes in South Africa's Karoo Desert.

And see also a more recent work by Douglas H. Erwin *Extinction, How Life on Earth Nearly Ended 250 Million Years ago* (2006). Erwin starts out by stating that he does not know the answer. At the end of the book, after reviewing a dozen theories, he still does not know.

Note that oceanic floor spreading also starts at about 180 mya, after the Permian (ended 250 mya) and in the Jurassic (started 200 mya).

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Note 6 --

Robert Bakker, in *The Dinosaur Heresies* (1986), convincingly suggests dinosaurs were warm blooded, and also writes about the extinction of the dinosaurs, 65 million years ago, stating the rather startling fact that "sedimentation stopped" after this time. He did not note that this was the time of the takeover of the soil by grasses. Bakker's claim about sedimentation started my search for the point in time between the two differing biologies that the Earth seems to have experienced.

I checked the record of orogeny, at least for the American continent; it looks periodic as well. However, orogeny is more likely to be caused by an expansion of the Earth -- which is a whole different topic altogether. The expansion and the creation of the world's oceans dates from the Jurassic during which time the oldest ocean depressions were formed. See the Appendix "Changing Size of the Earth." The disappearances of the inland seas after the Permian is probably the

result of a runoff to the much lower levels of the first true ocean depressions.

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Note 7 --

I will assume that all the "lost planets" of Saturn ended up orbiting the Sun at close distances, the location Saturn reached as it swung about the Sun at perihelion -- perhaps something on the order of one-half AU. Mercury today orbits the Sun at 1/3rd AU; Venus orbits at about 2/3rd AU. For Earth an orbit at 1/2 AU would make the climate much warmer, but it would be moderated by the Earth's enclosing atmosphere.

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Note 8 --

Niles Eldredge and Stephan J. Gould, "Punctuated equilibria: an alternative to phyletic gradualism" Annual Meeting of the Geological Society of America (1971). Also, Gould and Eldredge, "Punctuated equilibria: the tempo and mode of evolution reconsidered" *Paleobiology* (1977).

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Note 9 --

The extent of the Sun's plasmasphere is estimated at a modest 100 AU.

If Saturn is on a 27-million-year orbital period, then, from Kepler's 3rd law, $T^2 = R^3$, we get (using AUs and years)

$$R^3 = T^2 = 27 * 27 * 10^{12}$$

The cube root of this is 90,000 AU

The formula in the text compares (for the Sun) half the circumference of a circle with a radius equal to 100 AU (which would represent the average size of an arc passing through the plasmasphere of the Sun), with (for Saturn) the circumference of a circle of 90,000-AU radius -- using a circle as an approximation of an elliptical orbit.

$$(2 * \pi * 100 * \text{AU} / 2) / (2 * \pi * 90,000 * \text{AU})$$

Voyager I reached the edge of the Sun's plasmasphere (traveling 100 AU) in 26 years at 40,000 miles per hour (64,000 km/hr) -- more than its escape velocity

from Earth (it was augmented by a swing around another planet).

$$(100 * \text{AU}) / (40000 * 365 * 24) = 26.5 \text{ years}$$

Saturn in its entry into the Solar System would not reach this speed soon. Its average speed along its 27,000,000-year path would be only 220 mph (350 km/hr). It would speed up in closing in on the Sun, but would not reach a speed of 40,000 mph (64,000 km/hr) until it almost reached the orbital distance of Mars from the Sun.

The radius of the orbit of Saturn can be compared to the distance to the nearest star, Proxima Centauri, at 268,000 AU. Thus the (average) orbital diameter of Saturn's orbit is only about 70 percent of the distance to Proxima Centauri: $(2*90) / (268) = 0.69$. Proxima Centauri exists only as a single point in one location, somewhere in the sky. There are, by the way, some 32 stars within a distance of 950,000 AU (15 light years) from the Sun.

It should also be realized that the orbital period is not affected by the eccentricity. And, secondly, that Kepler's third law is based on the long axis of the orbit, so that estimates of how far away from the Solar System Saturn would travel are numerically correct.

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Note 10 --

The Chicxulub "impact crater" in the Yucatan (Mexico) is impressively large and circular (112 miles in diameter -- 180 km), but it is not an impact crater. It is surrounded with smaller perforations along the edge typical of any of similar anode burn marks elsewhere, such as the craters of the Moon. These are the cenotes (sinkholes) of the Northern Yucatan. Their circular pattern is clearly seen in satellite images. A gravitational anomaly mapping shows a ridge inside the complete ring of the "crater" which, of course, has led to the suggestion that the crater was formed by the impact of a smaller object only 6 miles in diameter. I'll suggest that the crater was made by a lightning bolt 112 miles in diameter.

The Chicxulub crater marks the boundary between two geological periods, the Cretaceous and Tertiary periods (the start of the Eocene), 65 million years ago, known as the K/T boundary ("K" from the German "Kreide" for Chalk, meaning Cretaceous), which also marks the extinction of the dinosaurs. An Iridium-bearing clay layer separates the two periods. This was first pinpointed worldwide by the team of Luis and Walter Alvarez (1980). Tom Van Flandern writes, about the "K/T boundary":

"Was the K/T boundary event the result of a single asteroid impact (causing the 200-300 km diameter Chicxulub crater in Mexico) or something more? We note the following points as evidence that it was something more:"

"The global set of craters Manson, Karn, Kamensk, Gusev, and another impact in the Pacific Ocean apparently all date from close to the same epoch. However, the diameter and abundance of quartz grains are larger in Western North America than elsewhere in the world, suggesting that the single largest impact was the Chicxulub event."

- *"The K/T boundary consists of two distinct claystone layers, the upper (soot, iridium) one with shocked grains, the lower one without."*
- *"Gorceixite (altered tektites with swirl patterns) is segregated within each layer, suggesting that different impact events formed these glassy beads."*
- *"A single bolide impact cannot simultaneously explain the pattern of major floral extinctions on land and other extinctions at sea."*
- *"Sediments in Cuba range from 5 to 450 m thick, probably from a giant wave. The (upper) ejecta layer is 50 cm thick in nearby Haiti, far more than at any other site, suggesting a major impact within 1000 km, which would be far from the Chicxulub crater in Mexico."*
- *"The K/T boundary layer is apparently absent from the Antarctic regions. Just as for the Sun, planets spend up to six months continually below the horizon as seen from each polar region alternately. So the boundary event apparently affected the entire globe except for the south polar regions. This pattern suggests multiple impacts from an exogenous source over a period of at least one day."*
- [\[http://metaresearch.org\]](http://metaresearch.org)

This accumulation of data starts to look more and more like a gigantic plasma strike followed by smaller strikes, "over a period of at least one day." By analogy from later and better-known events, I would suggest a period of seconds or minutes. Thunderbolts result in nearly circular "craters"; repulsive electric field impacts take a completely different form, last many minutes, and show the result of the Earth's rotation. Details of the results of a compressive electric force are developed in Chapter 9, "Event of the Younger Dryas," and Appendix B, "The Celestial Mechanics."

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Another likely sequence, which I will develop in the following chapter, is that Earth's connection to Saturn was at a lateral level before dropping below the south pole of Saturn. I estimate that this last process took from circa 10,900 BC to circa 2077 BC. Moving into the plasmasphere of Saturn, Earth would initially have received a massive electric field shock, followed soon by a thunderbolt from Saturn. It appears that the shock was repulsive, despite the fact that Saturn would be considerably more positive than Earth, which should have resulted in attractive forces.

The shock would account for the cold period of the Younger Dryas between 10,900 BC and 9,000 BC, for the compressive shock would generate very high temperatures, and instantly incinerate forests and prairies. Micro-fine carbon (nanometer particles) would have entered the stratosphere, in effect casting Earth into an extended period of shade.

I'll start the discussion of this in the chapter "Tunguska and Chicxulub." During this condition (being cast into darkness), Earth would have progressively relocated to further below the pole of Saturn, without any additional disruptive effects.

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Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Chapter 5: The Absu and Speculation.

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Contents of this chapter: [\[Equatorial Rings\]](#) [\[Measurements\]](#)
[\[Three Volcanoes on a Rock\]](#) [\[Sources\]](#) [\[Speculation\]](#) [\[History\]](#) [\[Endnotes\]](#)

**"A discovery must be, by definition,
at variance with existing knowledge."
-- Albert Szent-Györgyi**

Allow me to interrupt this exciting narrative with some comments on my sources and methods, and, since the thesis of this text goes counter to mainstream scientific dogma, I also have some notes on this. But first I'll take this opportunity for an early exposition of the Earth's equatorial rings which lasted partially into the current era. I'll start with the rings.

The Equatorial Rings

Corollaries are often suggested from available data rather than being derived from initial postulates. There is generally no problem with this, for our reasoning is frequently after the fact. However, in the ideal case we would start from an initial (*a priori*) postulate and follow this up with a search for data and confirmation of corollaries.

Let me take this opportunity to introduce the Absu as an example of this process, or at least as an example where it is still clear in my mind what evidence was brought to bear on the initial postulate and in what order. This is modestly revealing of how a particular idea was confirmed. What follows is also an important concept which informs all of the legends and mythology coming out of antiquity. Without the Absu being understood as a set of obscuring rings in the south sky, almost nothing will make any sense.

I started with the postulate that the Earth might at one time have had equatorial rings. The postulate for the existence of equatorial rings for Earth (which do not exist today), came from the general ideas that (1) all the planets with

considerable magnetic fields have rings, (2) rings of particles are probably suspended by electrostatic forces, and (3) the rings of Jupiter and the outer planets seem to be fading, whereas Saturn, which is electrically very active, still has the most noticeable ring structure.

The Earth, thus, would be a good candidate for having had equatorial rings. Earth has a magnetic field, and Earth was electrically active at an earlier time. Perhaps Earth had rings at one time which faded like the rings of other planets seem to be fading. This is already a qualified postulate, incorporating secondary evidence into the original notion.

But now consider the corollaries to the original postulate.

If the rings were seen in antiquity, then a record of this might exist. I had no trouble identifying the Sumerian *Absu*, the Egyptian *Duat*, and the Maya *House of Nine Bushes* as a set of rings seen in the southern night sky. The rings which were called "the Absu" in Sumer, are called the Abyss or "the Deep" in the Bible. The rings were almost universally, throughout the world, understood to be an ocean standing up from the south horizon. [\[note 1\]](#)

Second, if the rings existed, they would most likely have segregated into distinct bands, like ring systems of other planets, which could have been counted. The Sumerian Absu and the Egyptian Duat, seen at 30 degrees north latitude, consisted of "seven seas" (called "mansions" in Egypt as well as in the Bible), while the Maya or Olmec, located at 20 degrees latitude, ten degrees further south than Egypt and Sumer, counted nine rings ("bushes"). In the USA, at Poverty point, Louisiana, at 33 degrees north latitude, only six rings were recalled in a huge land sculpture.

Third, there are very strong traditions of the sky looking like a sea. It may have very well looked like Saturn's rings in the 1980s (when it was electrically more active than in the 2000s). A "sea" would be instantly suggested from the wave patterns seen in the rings, despite the fact that this sea was located in the sky. This is especially so because rings at different distances from the Earth would move at rates different from the rotation of the Earth -- some might even move backwards.

It is clear that both Sumer and Egypt described the southern skies (the Absu or the Duat) as a sea, although some Egyptian descriptions have more of the feel of a swamp. In Egypt, the Gods and the dead pharaohs are described as moving by boat across this sea. In Sumer, the God of water was assigned to the sector of the

sky below the equatorial. In Egypt, the mountain of Re (the later lower plasma plume of Jupiter) was said to rise out of the waters, and to illuminate the depths of the sea.

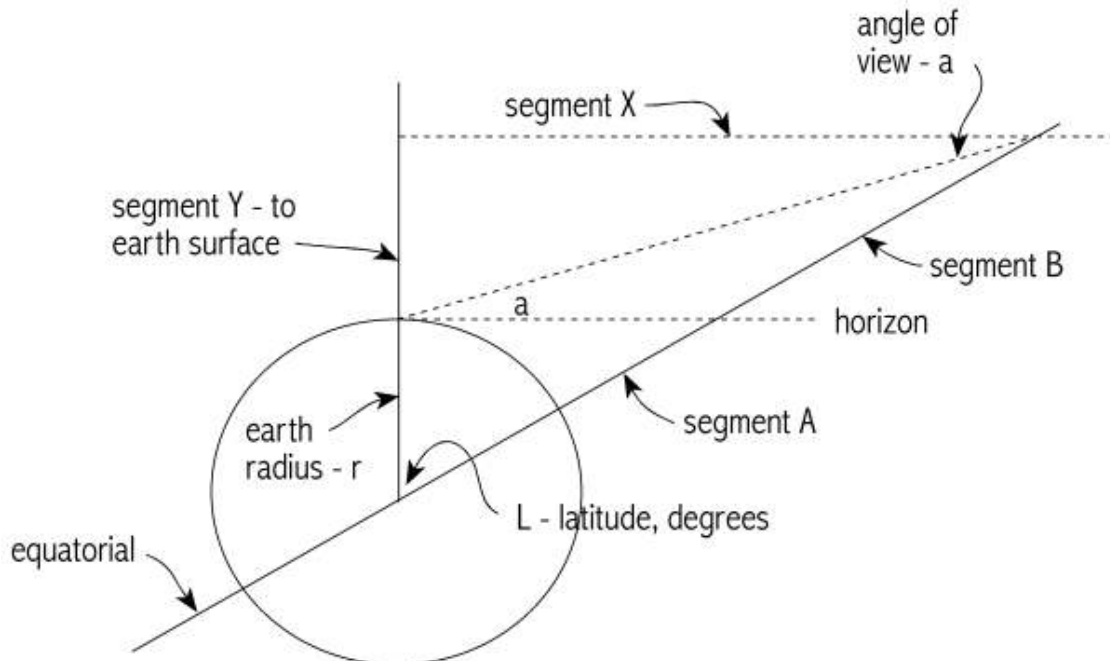
Last, the Earth would have cast a shadow across the rings at night, which would have moved from the east at nightfall to the west at dawn. Depending on the angle of the Sun, it would have looked like an obscured arched doorway, and at the equinoxes as a giant gap. I had no trouble locating references to a doorway of the Duat and to the Egyptian name for the door whose name implied that "reeds did not grow there." And it is also clear that the land of the Gods and dead pharaohs was located in the sky in the west -- the direction in which the portal moved each night.

Once the initial "postulate" that Earth had equatorial rings was established as "not unproven," it suggested other directions of inquiry. For example, the "flood of Noah" suddenly became clear when measured up against the lack of physical evidence and the statement from China (of about the same date of 2349 BC) that the waters "stood above the mountains." I'll detail these events in following chapters.

The Absu probably existed already long before 3147 BC. The Egyptian word for the rings ("Duat") is very old and was never defined in antiquity (Budge). Seen from the ground at a location in the northern hemisphere, the rings would have filled the southern night sky from east to west in a semicircle standing at an angle less than the complement of the latitude -- about 50 degrees up from the south horizon in Mesopotamia and 60 degrees in the Yucatan. The Egyptians and Sumerians recorded that seven rings could be seen. The Olmecs in Central America, located closer to the equator, noted nine rings. India, at 10 or 20 degrees north latitude, also counted nine rings. The bands (rings) above the equator of the Earth probably reached 8500 miles (14,000 km) high. This is found with the following calculations.

Measurements

The angle above the southern horizon that the rings could have been seen can be estimated if some assumptions are made about how far the rings might have extended into space.



[Image: The angle of view of the Absu. Courtesy of K. Widen.]

The diagram above is composed of two congruent right triangles, composed as follows:

Large triangle: legs x , and $y + r$, hypotenuse $r + A + B$

Small triangle: legs {unspecified} and r , hypotenuse $r + A$

There is a region of the rings which is not seen because it falls below the horizon. This can be neglected, since we are interested only in what was seen in the sky, not what was unseen. The following lists how many rings were seen at various latitudes:

- The Yucatan at 20 degrees latitude -- 9 rings;
- Egypt, Memphis at 30 degrees latitude -- 7 rings; and
- Poverty Point, Louisiana, at 33 degrees -- 6 rings (as an archaeological model).

The nine rings seen in the Yucatan probably represent the maximum number of rings, since only the 256 miles (412 km) above the Earth would fall below the horizon. By analogy with the rings of Saturn, it is unlikely that any rings were closer to Earth.

The angle of view (marked a) to the top of the Absu can be found from segment X and segment Y as the arctangent of Y/X .

The remainder of these calculations is in miles.

As a sample, for an estimate of the height of the Absu (A + B) of 20,000 miles, seen from latitude 20 degrees, we can find X and Y as follows:

$$X = (20000 + 4000) * \sin 20 \text{ and}$$

$$Y = (20000 + 4000) * \cos 20 - 4000$$

The results can be found for two latitudes used above (skipping Poverty Point), and for various values of the extent of the rings, as follows:

$$\text{height} = \arctan((14000 * \cos(20) - 4000) / (14000 * \sin(20)))$$

Comparing Memphis, Egypt (30 degrees), with the Yucatan (20 degrees)			
extent of the Absu -----	height of Absu in the sky -----		add'l view -----
	30 degrees	20 degrees	
20,000 mi	54.4 deg	66.1 deg	21.5 %
10,000 mi	49.3 deg	62.4 deg	26.6 %
9000 mi	48.2 deg	61.6 deg	27.8 % <---
8000 mi	46.8 deg	60.6 deg	29.4 % <---
6000 mi	43.0 deg	57.6 deg	34.0 %
4000 mi	36.2 deg	52.1 deg	43.9 %
2000 mi	21.7 deg	38.6 deg	77.9 %

The two additional rings seen at 20 degree latitude, compared to 30 degree latitude, represent a 28.6 percent increase (2/7th) in the number of the rings. As can be seen, a difference of 28 percent between the view at Memphis and in the Yucatan would occur if the rings extended 8500 miles above the equator. There probably were no visible rings close to the atmosphere or stratosphere. The portion of the equatorial below the horizon is 256 miles for the Yucatan (from $A = 4000 / \sin(90-L) - 4000$).

I have included values for 20,000 miles and 10,000 miles in the listing above to demonstrate that even extensive rings will only visually approach the equatorial, they will not be placed beyond the equatorial. This is so because the projection of the equator up into the sky remains below what we would identify as the "equatorial" line on a map of the stars. The equatorial rises to 60 degrees from the south horizon at 30 degrees latitude, and rises to 70 degrees at 20 degrees

latitude. The Absu, Duat, and the House of Nine Bushes each remained below this.

Thus the Absu in Mesopotamia (and the Duat in Egypt) rose about 48 degrees above the southern horizon, somewhat more than half way up into the sky. In the Yucatan the "House of Nine Bushes" would have risen 60 degrees into the sky. In both these cases the rings would have partially obscured the ecliptic.

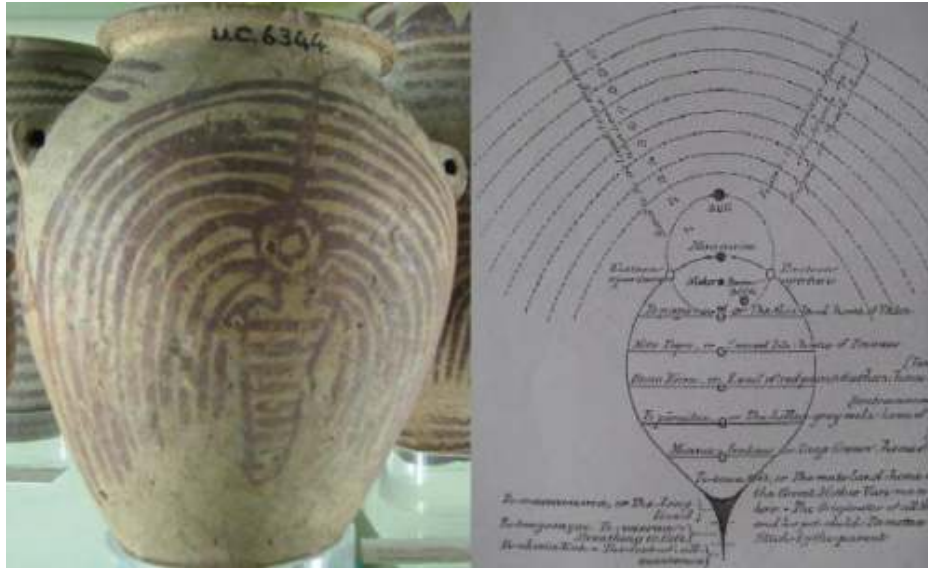
There are Mesopotamian references to 7 streams of the Absu, the same number as in Egypt. India, extending from 30 degrees latitude down to 7 degrees, recorded 9 rings (or streams, rivers, or seven snakes).

I have neglected Poverty Point (described below) in this comparison, because I am not sure if the concentric berms at Poverty Point would represent the Absu, tempting as this conclusion might be. The six ring structure at Poverty Point may have been constructed a thousand years after the fall of the Absu, and is likely to be a schematic representation of the heavens, since it faces east, the first location of Jupiter when the Earth on its orbit passed Jupiter. The reduction of one ring at Poverty Point from the seven rings of the Duat is, however, consistent with the decrease of two rings between the Yucatan and Memphis.

The *Odyssey*, written in Sicily, assigns six necks and heads to the monster Scylla, who lives in a cave (where else?) very high on a mountain rising out of the "sea." Sicily is at 37.5 degrees north latitude, similar to most of the Greek mainland (or homeland), and also similar to Poverty Point at 33 degrees north latitude where six rings were seen (see further below). See Samuel Butler, in *The Authoress of the Odyssey* (1922), for the very convincing attributions of authorship and location to Nausicaa and Sicily.

The count of rings in the "Chilam Balam" is not consistent. It is possible that seven rings should be counted, based on some references to "the seven seas" (which is Mediterranean terminology).

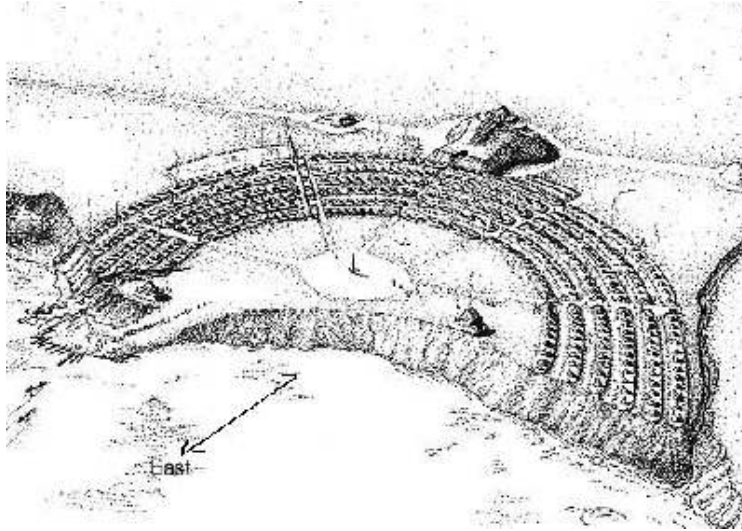
It looks as if the number of rings which could be distinguished increases with latitude, as the viewing angle became more obtuse, despite the fact that the rings would be lower in the sky. Thus in Nordic countries and in Tibet, China, and Siberia nine rings are counted. I should add that Hesiod counts nine rivers surrounding the Earth (at 38.35 degrees north latitude).



[Images: Left: Naqada II period Egyptian pot showing 6 or 7 ring areas. Right: A 19th century conceptual diagram of the nine heavens above Earth, plus six Underworld regions, Cook Islands. After M. van der Sluijs.]

Rens van der Sluijs offered two additional examples, one being an Egyptian Naqada era pot (3500 -- 3200 BC), and another as a native cosmological diagram recorded by a missionary to the Pacific Cook Islands in the 19th century. The Cook islands are at 20 degrees south latitude, and would afford a view of the Absu as consisting of nine rings, similar to what was seen in Central Mexico at 20 degrees north latitude. However, the Cook Islands were not settled until about AD 300. At the time when the Absu last existed, the inhabitants lived in the Bismarck Archipelago or New Guinea at about 5 to 10 degrees south latitude. (TPOD at www.thunderbolts.info, April 17, 2008)

The fact that the rings do not come together in the east and west in the Cook Island diagram, could be attributed to the fact that the reconstruction was made 4000 years after the Absu fell. But for the Naqada period vase, where the rings are also shown equally spaced from left to right, this is not an explanation. The number of rings of the Naqada pot count to 11 or 12 if the lines demarcate separate rings, but to six or seven if each ring is understood as depicted with two edges. The failure of the rings to come together at the horizon may be because in the Nile valley the horizons directly east and west are obscured by a rise of the landscape.



[Image: Artist rendition of Poverty Point, Louisiana, with six concentric berms in circa 1350 BC. The rings face east, at the edge of the Mississippi river, before its course relocated. The very large mound to the west represents a bird with spread wings. After Jon L. Gibson.]

In North America, in the state of Louisiana, at Poverty Point (33 degrees north latitude), starting circa 1350 BC, a group of villages constructed an amphitheater as a model of the Absu, consisting of six concentric rings of ridges, broken by five aisles radiating from the center. Poverty Point in Northern Louisiana is three degrees further north than Memphis in Egypt, from which we have the measure of the "seven rings" of the Duat. Thus in Louisiana one fewer of the rings would be seen. The opening of the semicircles faces east, with the center (where a bird mound is located) aligned about 15 degrees north of east, possibly in expectation of the easterly rising of Jupiter. As likely the bird is an image of Mercury, seen flying from east to west after 3067 BC for 300 years, and again after 1936 BC for some extended time. Mercury when passing Earth would have polar plumes facing north and south, looking like wings, and a fairly short tail, depending on the location of the Sun. The absolutely giant size of the bird mound is an indication of how large Mercury might have looked in passing Earth. [\[note 2\]](#)

The rings of material would have obscured the southern stars, and probably became organized into distinct bands and broken up into a pattern resembling waves (as was seen for the rings of the planet Saturn in the 1980s). The nearest bands moved to the east, faster than the rotation of the Earth (which seems to move the night sky to the west). Bands further up from the horizon moved

slower. The wave pattern filling the southern sky is the "sweetwater ocean" of the Sumerians and, for the Egyptians, the entry to the "Underworld." [\[note 3\]](#)

Each night the shadow of the Earth would sweep across the rings from east to west. In effect a portion of the rings would not be seen, leaving only the left and right (and top) edges. The effect looked like a portal or gate. This became the gateway to the "other world" of the Egyptians, located in the western sky -- the direction in which the doorway rotated each night. [\[note 4\]](#)

Near the equinoxes the Earth's shadow on the Absu would extend all the way across the Absu from bottom to top. Because at this time the penumbra, the widening soft shadow of Earth, also fell on the Absu, the shadowed area would be shaped like an inverted trapezoid, wider at the top. In Mesoamerica the ballcourt, constructed between two sloping walls, is a physical representation of the south sky at night seen at the equinoxes. In Egypt, at the time of the New Kingdom, the God Re (as Jupiter) is almost always depicted as a giant red globe located in a mountain saddle -- a valley between two mountains composed of ridges and grown with reeds. Graphically this also describes the Egyptian "field of rushes." The massive pylons used as the gates to later Egyptian temples are probably meant to represent the left and right edges of the Duat defining where the shadow of the Earth did not fall.

In Akkadian times (after 2335 BC), in Mesopotamia, the name for the village of Babylon is misunderstood by the invading Akkadians as "The Gate of the Gods" -- that is, the doorway through the Absu. Subsequently, Babylon becomes the most important ceremonial center in all of the lands of Akkad and Sumer, a position held for 2000 years.

I have presented this information on the Absu (more will follow) because it is an important concept. Once the reader knows of the Absu, many statements and descriptions from remote antiquity, which have reference to an ocean, a sea, a number of rivers, or a seven-headed snake, all of a sudden take on meaning and start to make sense. The concept of an ocean in the south skies remained even long after the Absu disappeared.

The rings disappeared, rained down upon Earth and drifted out to space, after 2349 BC, in what would later be known as the "flood of Noah," with the last and most distant ring remaining, I suspect, to perhaps AD 600. More on this in a following chapter.

Three Volcanoes on a Rock

The image below was published in *Newsweek Magazine* in the mid-1980s. It became a starting point for inquiry for me. It is an image taken by the European satellite Giotto of the comet Halley. As originally presented, the image was colored orange -- as if to suggest that the "ice subliming into water vapor" from the comet was lit by a late afternoon Sun.



[Image: The comet Halley spewing forth matter in UV and X-rays from three "volcanoes" on the nine-mile-long rock (14 km). The arcs point almost directly at the Sun. After Newsweek.]

It was this image which convinced me to stop believing in official presentations. It was noted at the time that the three "volcanoes" of the nine-mile-long rock were producing X-rays and ultra-violet radiation (measured at several thousand degrees Centigrade) in the process of subliming water. However, no further mention was ever made of this. There was something awry with this presentation.

The traditional explanation is that comets consist of ice, which moves water vapor out into the space surrounding the comet as the ice is heated on approaching the Sun. It occurred to me that the subliming of ice, at the temperature of deep space and at some 100,000,000 miles (160,000,000 km) from the Sun (as far as the Earth is from the Sun), would not hurtle water molecules 12 million miles into space, much less produce X-rays or ultra-violet radiation, representing a temperature of several thousand degrees. On Earth, subliming ice wafts into the air, producing a hovering fog. In a vacuum something similar would happen. But what we were seeing were "jets" of matter,

at times attached in the wrong location to comets, being expelled in the wrong direction.

Comets are rocks, like asteroids and meteors -- they are not snowballs. As the comet Halley moved closer to the Sun from the far reaches of space, the major change in its environment was the ever-increasing electric field of the Sun. Halley, initially at a much lower electric potential (higher negative), had to make adjustments. The coma and the tail are a cloud of excited electrons (and sputtered ionized silicates also), a plasma in glow mode. The plasma forms an outer sheath of lower negative charge, seen as the coma and the tube of the tail, which in effect isolates the comet, which carries a much higher negative charge (a lesser positive voltage), from conditions of the Sun's electric field immediately outside the coma and tail. [\[note 5\]](#)

The coma is maintained by supplying electrons from the disassociation -- the electric breakdown -- of rock inside the coma. Thus within the coma a charge equalization also takes place between the exterior coma sheath and the solid physical object (called the nucleus) of the comet, resulting in an electric current impinging on the rocky core. At the surface of Halley the extreme electric stresses produced three localized spots where the current flow of the plasma was concentrated to arc mode. These were not three volcanoes fed by a heated interior. Halley has been seen as a comet repeatedly since remote antiquity -- at least since Roman times. The whole of the interior would certainly have been expelled by the "volcanoes" by now. What was happening instead is that the rock of the outside surface was being broken down atomically to yield electrons, with the ground-up rock released as positively charged (ionized) fragments and repelled.

If comets are understood as balls of snow or ice, the radiation of ultra-violet and X-rays is completely inexplicable. But radiation is certainly expected when produced by electric arcing. The "water vapor" detected in the tail is actually (and admitted to be) Oxygen radicals, not produced by subliming water, but by the electric decomposition of rocky silica compounds into ionized Oxygen, Silicon, and Helium. The electric field of the comet propels the positive ions into space.

Sources

My method in developing these pages has been varied. First, much of the information has been accumulated over a lifetime and so, in a manner of

speaking, I had the facts on hand. Secondly, although most of the time I just had to plod through texts -- checking dates, names, and other details -- quite a few times the story simply jumped to mind. On hindsight the narrative is all too obvious. Of course, backing up these insights frequently took weeks and many rewrites.

I started from four primary sources. The first of these was Immanuel Velikovsky's book, *Worlds in Collision* (1950), which related a close approach to Earth by Venus at the time of the Israeli Exodus, in 1492 BC, and a number of destructive passes by Mars in the 8th and 7th century BC. The information is almost entirely from literary sources rather than physical data (although well established for Mars), but it is quite convincing, even though some of the source data is applied to the wrong events or the wrong era, and Venus never came close to Earth.

The second was David Talbott's book, *The Saturn Myth* (1980). Talbott's search among Egyptian and Mesopotamian sources established the image of a large globe, identified as Saturn, standing above the Earth at the north horizon in remote antiquity. Many other researchers have followed up on his initial ideas and augmented the information. A number of physical models have been suggested, of which only one made sense, as proposed by Wallace Thornhill -- the combination of a stack of planets, planetary electric fields, and plasma interactions.

My third source, thus, was Thornhill's insistence on the electric nature of planets (and the Sun) and the electric interactions in the form of plasma streams -- presented at a conference in Nevada in 2001. There is no definitive text on plasma at interplanetary levels. (Although Talbott and Thornhill have now written two books on the topic; see below.) But plasma has been part of physics and electrical studies for 150 years. I have played with plasma devices since high school. [\[note 6\]](#)

The fourth source has been Julian Jaynes's book *The Origin of Consciousness in the Breakdown of the Bicameral Mind* (1976). Jaynes makes the claim that subjective consciousness did not become part of human culture (at least, in the Near East) until the first millennium BC. The overwhelming concern of our ancestors with the gods in earlier antiquity was suddenly explained. Additionally, the book is a gem of insight into how we think. Jaynes's book is independent of any of the above.

Taken together these sources present a picture of antiquity which does not match the traditional histories entertained today. As I mentioned earlier, there is an amazing collection of information in agreement with the postulates of the cosmology presented here, which in turn strongly confers validity. This cosmology suggests sensible answers to questions which remain unanswered by the traditional "handed-down wisdom" usually presented as the history of mankind, the Earth, the Solar System, and the Universe.

Speculation

I have been accused (rightfully so) of speculation. *Mea culpa*: everything in this field is speculative. Even all of the "Electric Universe Forum" (who did the accusing) is completely speculative. But I might point out, that with "mere speculation" I have in only a few years managed to come up with a reliable and detailed chronology, the dynamics of planetary interactions, step-by-step descriptions of catastrophic events, an elucidation of symbols, the effects on culture, philosophy, and religion, and an extension into the Paleolithic and the Precambrian. All from information which is readily available.

All of the "science" of geology or astronomy are speculation also. Speculation at least implies the guessing after causal connections among facts. The facts are not in dispute. The objection was to my mediation of them and the conjectures I might have arrived at, as apposed to what *they* might have derived. True, even to me the narrative proposed here often looks like science fiction, complete with unbelievable portents in the skies and dire psychological effects on humans. And it has taken relentless imaginings of the dynamics and the chronology. But the results, as Rens vd Sluijs proposes as the requirements of an adequate theory (meaning "model"), are both "most convincing" and "complete." The narrative I have developed on these pages is certainly well-founded speculation. Everything fits, although the 3000-year history is as complex as an O'Henry novel. What I *have not done* is to start from an *a priori* assumption that there was only one event -- an important distinction.

I should warn the readers, that the Thunderbolts people (Thunderbolts.info) consider *their* thesis -- based on a single celestial event of circa 3200 BC -- as consisting of "the highest confidence levels and the least amount of conjecture" (vd Sluijs). Their thesis is the demise of the "polar configuration" of planets (a form which I also support, with modifications), in about 3200 BC. And nothing more, only the destruction of this "polar configuration."

The "polar configuration" of Saturn was first developed in the mid-seventies, and codified with the book *The Saturn Myth* by Talbott in 1980. It is promoted and expanded upon at the website Thunderbolts.info. But except for the addition of plasma to the mechanics of this, no advances have been made since 1975. The Thunderbolts group has organized conferences, written glossy books, and produced splendid videos. But all of it seems based on promises of something better to come, and hints at a complete picture at a later date. Yet, in nearly 40 years, nothing further has come forward beyond the original "Polar Configuration" and the obvious conclusion that it must have come to an end at some time in the remote past. Examples of their point of view follow:

Ev Cochrane, in "Beyond Bauer" in *Aeon* (1991), wrote:

"... it should be noted that the upshot of the researches of Talbott and Cardona has been a marked tendency to shift the emphasis away from alleged catastrophes in the 15th and 8th/7th centuries BCE to cataclysmic events of earlier, prehistoric times." [\[note 7\]](#)

And with that the complete content of Immanuel Velikovsky's book *Worlds in Collision* is dismissed.

Cardona asks, in "Velikovsky's Martian Catastrophes" (*Aeon* 1990):

"Where, I ask, is there one unequivocal mention of a Mars looming large in the sky anywhere in the literature of the period?"

Cardona has in mind the writings of the Hebrew prophets, and perhaps the archives of the Assyrian kings. But where does a statement like this come from? There must be hundreds of references to Mars under dozens of names. What is mostly missing from the record was the ability or the felt need for the remaining population, 5 percent of the people alive in 800 BC, to create these records.

Cardona at this time was also not aware of the Maya *Chilam Balam* which states, in no uncertain terms, and for the period starting in 747 BC, "Then it was that the word of Bolon Dzacab [Mars] descended to the tip of his tongue." Any archaeologist of Mesoamerica will tell you that Bolon Dzacab is Mars.

What is the "tip of his tongue?" It is the plasma extension of dust below Mars, first noted in the Egyptian "Eye of Ra" (the "Wedjat"), and shown in the much later giant Aztec calendar wheel as an actual tongue of Mars.



[Image: Calendar stone of the Aztecs; after Wikipedia.]

Also lacking is a logical series of events at the close of the Age of the Gods and after. The only end to the polar configuration is the claim by the Thunderbolts group of a catastrophe of unimaginable magnitude involving Chaos Hordes and Dragons -- a "heaven-altering 'Doomsday' catastrophe," which, however, never happened. It is, in fact, an ending concocted from much later events and evidence. Only a worldwide flood happened -- in fact, this was the actual flood of Noah.

Complaining in frustration of what he called "the mediocrity, the shallowness, the amateur sophistry, and the nauseating bluff of the neovelikovskian dilettantes," Roger Ashton once likened it as, "a little bit of this, a little bit of

that, all aimed at a picture of earnest and revolutionary scholarly enterprise, but leading absolutely nowhere." [\[note 8\]](#)

I'll be more charitable and suggest instead that the Thunderbolts group knows something was going on, but they can't quite explain it, can't get at the core, do not understand the impact that the "unknown something" has had, yet they continue to promote the ideas, hoping for clarification and resolution in their lifetime. A look at their past publications shows the enormous intellectual efforts that have gone into deriving a workable model of the past. An absolutely astounding effort, with no viable results.

Some of the Saturn Theory of Talbott may be just dead wrong (as my reconstruction might also be). I believe that something went wrong with the out-of-hand dismissal of Velikovsky. The reasoning may have been based on problems with Velikovsky's suggestion of a "close encounter" with Venus -- for the world would have been destroyed. But when I started to look at this, I could not get Earth and Venus closer than about 10,000,000 miles (16,000,000 km). That solved a lot of problems; but that distance did not preclude an astounding electric field interaction. But to conceive of this and understand it, required the application of electric field theory. At least, I have a degree in Electrical Engineering, and have no problem with that.

Alfred de Grazia in *The Burning of Troy* (1984) wrote:

"I would call your attention also to the work of an engineer who has occupied himself with electrical phenomena, Ralph Juergens. Mr. Juergens, working alone and without support other than that provided by the inspiration and encouragement of a few friends, has written articles that I am convinced will be numbered among the most important of our age. The thesis which he advances, and which is my candidate for the winning side in the approaching cosmic debate, is that electrical forces of almost unbelievable magnitude were exercised upon the Moon, Mars, Earth and other heavenly bodies in the recent past."

Let me call your attention to the phrase "forces of almost unbelievable magnitude."

Of the core group of Thunderbolts, Juergens had an engineering background, and could think and imagine what could happen within the realm of plasma physics and Earth-sized globes (and larger) located in the domain of the Sun. That capability is today held by Scott and Thornhill, neither one of which is to be

neglected in their writings. But the rest are often clueless when it comes to plasma; they tend to wave plasma around like so much New-Year party confetti.

Anyway, the difficulty with Velikovsky and Venus was such that absolutely everything Velikovsky had come up with was summarily moved to the end of the "Era of the Gods" -- to 3200 BC. And so the raging goddess or dragon of 2349 BC, and the sky filled with blood, was incorporated into the demise of the polar configuration of circa 3200 BC. The Exodus (of 1492 BC) was held to be only a retelling of the earlier cataclysm.

The destruction of more than 1000 cities throughout Central Asia, Persia, the Middle East, Greece, and Italy during the 8th century is neglected by the Thunderbolts group and assigned to earthquakes and marauding Assyrians, as mainstream archaeology also does. Nothing is made by the Thunderbolts.info group of the parallel destructions in Mexico and the Southern United States -- in the 8th century BC almost all of the established farming communities in Veracruz and the Valley of Mexico disappeared. It is a parallel to what happened in the Mediterranean, where 98 percent of the population disappeared between 800 BC and 700 BC.

In actuality, and as I have it, the Exodus story as recorded by Moses was largely a retelling of the event of 2349 BC, an incident never sounded by Velikovsky or the David Talbott's group except in equating it to the onslaught of a dragon. And thus the attacking dragon, the three days of blood in the sky, and the new midnight Sun were also moved to 3200 BC, soon followed by the Bull of Heaven, the traveling mountain of the "Sun," the polar plumes, the gates of heaven, the rings of the south, the seven cows, the star in the crescent (from the 7th century BC no less), and any number of other celestial phenomena.

No one seems to have ever asked the question, What happened to each of the planets when the "Polar Configuration" came apart? What caused the breakup? This has remained unanswered for 40 years now. Yet it took me only a few days to trace out what happened in 3147 BC from available data, although it took months to write it all up.

I should point out also that the ideas promoted by Velikovsky had assumed the status of dogma. These included three outstanding fallacies which have endlessly delayed reasonable analysis:

- the concept that Venus exploded out of Jupiter,

- the concept that Venus left its orbit, and
- the concept that Venus came close to Earth.

Speculation or not, the difference -- the reason I have been able to put together a cohesive and valid narrative in a very short time -- is all in my looser requirements but mainly in my adherence to common sense. I have not based efforts on the pronouncements of a guru.

In my reconstruction cataclysmic events have come forward independently, and were confirmed and explicated one by one. I would also attribute much success to a determination to first create a likely chronology and postulate likely celestial dynamics. Once settled on (even as these two were corrected and augmented many times), they became the touchstones to test the available mythological information against.

Additionally I also have had the distinct advantage of starting very late with this, so that almost all of the information was already available, although I found it uncollated and frequently reductively disassembled. And I cannot forget the endless expansion of the Internet during this period as a source. That was a relief from the initial task of acquiring background information from library books. I can now find a single word in Homer's *Iliad* in a fraction of a second, rather than paging through the text. And I no longer need to initiate an inter-library loan to look at de Santillana and von Dechend's *Hamlet's Mill* -- it is now online.

The development of a chronology based on the Sumerian *King List* has been the key to unraveling the oldest mythology. That, plus a long time-sequence of Venus figurines over the period of the Upper Paleolithic and the early Neolithic. I was lucky in that respect. As the chronology and mechanics of celestial events solidified over the years, additional facets of mythological and historical obscurities simply started to fall into place. Speculation bore fruit.

I have also spent an inordinate amount of time thinking about the subject, a luxury which other researchers may not have had, which has allowed the evaluation of many alternatives, some of which only slowly took shape. I can imagine orbits, I can imagine the view from Earth, and I can do geometry and make some calculations. And I have consistently attempted to put myself in the frame of mind of the people who experienced the events in the past. Lastly, I have been allowed to constantly rewrite, augment, and alter this text, since it is presented as a mutable Internet document. I therefore have never backed myself into a corner because of what I might have published earlier.

I have degrees in Electrical Engineering, Industrial Engineering, and a Masters in Fine Art. Electrical engineering study involves an inordinate amount of math and more particle physics than physics majors receive. I remember almost nothing of this, but always know where to look things up, and can recognize what others are doing with physics or math. I understand and can visualize plasma. The MFA background prepared me to consider conceptual aspects of the physical world. I have published probably 70 or 80 essays in art criticism.

I have not departed from the original Saturn "theory" as much as I have extended it. The original Saturn Theory of 1980 was monolithic, and still is today. The approach was known as "neovelikovskian" -- a philosophy meant to replace all of Velikovsky's findings with a single earlier event. The notion of a single cause, a single event, the idea that only one thing happened, and that all the resulting mythology and symbols sprang from this event, is a fallback position, an admission that nothing is really known about the events behind the mythology or about the event that concluded it. The first question on reaching this nexus should have been, "And then what happened?" The disposition of planets after the end of the "Age of the Gods" was never considered.

As a result, the Thunderbolts people have been working from a "story core" model which severely limits what can be imagined. In 2008 Talbott wrote, *"Ra, in his original character, is the primeval Sun and Horus is the warrior-king,"* reiterating a reading which has stood for 40 years. And there is the Princess, the Mother Goddess, the First King, etc. I really think that this morality-play idiom ought to be dropped, since it is so deeply imbedded in Western culture, Christian philosophy, and the Indo-European language as to be useless in the analysis of how people of differing cultures, differing philosophies, and differing languages would have understood the celestial images. What immediately comes to mind is the mythology of Mesoamerica, where there are no Goddesses (the Moon excepted, and she is a hag), no First Kings, and no Warrior Heroes -- only two clever boys with their blowguns.

Affirming the Consequent

I need to explain also how I managed to get so much detail of events, how I determined dates down to the seasonal, how I managed to pinpoint events in the catastrophic history of the Earth which have eluded other researchers, and how I have been able to clear up enigmas and mysteries which have stood in some cases since antiquity. I especially need to explain this to those to whom, by their admission, I am an embarrassment. Someone wrote to me:

"[we] feel uncomfortable about the way you blend our findings with your own thoughts and speculations. You appear with a website that claims to fill in all the gaps."

Absolutely right. This website came out of nowhere, written in basic outline in a year and a half between summer of 2003 and spring of 2005, with further editorial expansion lasting through 2010. And it does "fill in all the gaps" which I assume are recognized to exist by the writer above. Sounding very much like an insulted mainstream uniformitarian, flailing wildly at a heretical catastrophist, I received the following critique:

"Practically every sentence ... contains one or more errors of fact, citing out of context, misunderstanding sources, and so on."

And so on. There is more, but not worth quoting. But let me propose how I filled in all the gaps.

"It is an elementary logical error (known as 'the fallacy of affirming the consequent') to argue backward from the truth of the conclusion to the truth of the premises." -- Wesley Salmon, Scientific American, May 1973.

This method is otherwise known as "abduction." It is illegitimate from the standpoint of classical logic, since conclusions are derived from results, rather than the other way around. But it is exactly the method used in mythological research -- as well as geology and astronomy. Thornhill at one time wrote:

"At the heart of geology and planetary studies is a reasoning process called abduction. It is a form of logic whose major premise is certain and minor premise is probable."

It is a haphazard process at best, but it is also exactly the method used by Talbott in deriving at the content of *The Saturn Myth*: an amazing and unequalled "abductive" leap.

You gather representative data, then look for a theory. Abduction has legitimacy especially in probabilistic approaches to problem solving; it includes, of course, the evaluation of what would be most likely, perhaps requiring an imagination which correctly points up various visual phenomena, and the ability of setting yourself into the mind and eyes of humans of antiquity, even to the point of selecting various points of view from terrestrial locations. There could be thousands of instances of reported observations, but, as Michael Kaplan and

Ellen Kaplan observe in *Chances Are* (2006), *"but observation, however diligent, is not the same as understanding the forces that generate phenomena."*

Kaplan and Kaplan are talking about weather data (which is considerably more uncertain than the "it most likely is" used here). But the magic of "understanding the forces of generation" applies, for example, to instances of any recorded data from antiquity, found by the *"hundreds, possibly thousands, all painstakingly accrued from a minute inspection of primary sources, spanning millennia in age and across a spectrum of different languages"* -- as reported to me by one avid Thunderbolts group researcher.

But what do you do with all this data? To suggest even one possible cause -- a hypothesis -- is, in fact, the only resolution to providing parentage to all these orphaned data. If one data point can be assigned to a cause, and another, and more yet, then there is no need for a collection of hundreds or thousands. And in this process I have never been wrong. The date of Exodus might have been 1495 BC instead of 1492 BC; what Isaiah had to say might have been recorded a hundred years later (and probably was); the plasmoid from Jupiter might have been 10 million miles (16,000,000 km) long rather than 15 million miles (24,000,000 km). But the outline of the overall narrative, and the intent of the facts used to support this, remains the same.

History

The center post of the house of the Saturnian Polar Configuration was the existence of a plasma column extending from Saturn via "Venus" and Mars to the north polar region of Earth. This had been the supposition since 1980, and it is also more or less the physical model on which I built my exposition, although I moved the contact point to the magnetic pole instead. Anthony Peratt (an electrical engineer) joined forces with the Thunderbolts group in the year 2000. The Thunderbolts people were elated, as evidenced by their enthusiasm in the online newsletter [[*Thoth*, volume 5, \(1991\)](#)], for Peratt could explain much of the imagery which the Thunderbolts group had already collected. To quote from *Thoth*:

Then came one of the great surprises in the history of the research. It occurred only last September, when Tony Peratt, one of the world's most accomplished plasma theorists, described the violent evolution of a plasma discharge form that he had documented over more than two decades. In plasma science this configuration is named after Tony -- it is called the

"Peratt Instability." From the moment of this revelation, nothing has been the same. The correspondence between the global pictographic record, our reconstruction based on historical testimony, and the extraordinary forms of the evolving discharge in the laboratory is simply "too specific and too precise to be due to accident."

Anthony Peratt published his first findings on petroglyphs in December 2003, in a paper titled "Characteristics for the Occurrence of a High-Current, Z-Pinch Aurora as Recorded in Antiquity" (*IEEE Transactions on Plasma Science*). In his acknowledgements, Peratt thanked A. Acheson, M. Acheson, D. Cardona, E. Cochrane, A. de Grazia, B. G. Low, C. J. Ransom, D. Scott, D. Talbott, W. Thornhill, H. Tresman, I. Tresman, and M. A. van der Sluijs, all people associated with the Thunderbolts group. It is evident that Peratt worked closely with them. [\[note 9\]](#)

For his second paper on petroglyphs, published in August 2007, the same people are listed. Meanwhile, Peratt had co-authored other papers with vd Sluijs and Scott. Peratt's second paper explains in print what must have been known even before the first paper was published, that the "gigantic auroral plasma column," now known as the "Peratt Column," was seen in the south, not in the north.

This must have been a bitter disappointment and major setback for those who had built their whole theory on a northern polar column. A giant of science had been engaged to help carry the logs, but now he had dug a hole which buried the column, center post to the house of Saturn, and flattened the boys when the house blew up. Progressively, from about 2004 or 2006 on, the Thunderbolts related websites started removing the previous reconstructed history of antiquity. Such are the pitfalls of speculation. [\[note 10\]](#)

Peratt's second paper prescribed a date for the south polar column of "about 10,000 BC to 2000 BC" (one date of 5000 BC is listed). But I was able to quickly integrate the "Peratt Column" into the archaeology of the remote past, initially finding numerous Mesoamerican references, followed by curious Babylonian and European imagery. Japan and China followed soon after. At some point I just stopped collecting references from antiquity to the "Peratt Column" and the three southern ball plasmoids. From Mesoamerican sources it was relatively easy to find the closing date of the first "Peratt Column" as 3847 BC (in Solar years). From this it is apparent that the three plasmoids first showed in 10,900 BC -- the same year that North America was devastated with a repulsive electric field force.

Both the number of entities seen and the number of times the "Peratt Column" showed up in the south sky, mentioned by Peratt, is verified by Mesoamerican, Indian (Vedic), and Chinese sources, and indirectly by the *Popol Vuh*.

The causeways at Carnac point up that the electron beams of the "Peratt Column," which traveled past the Earth (on all sides), connected to another circular entity in the north. The *Popol Vuh* makes the same point: there were two sets of Gods, three in the south, five in the north. See the chapters "The Peratt Column" and "The Popol Vuh." After having been seen three times over a period of 2500 years (10,900 to 8347 BC) as lines to some objects in the far south, the "Peratt Column" disappeared along with the terminal ball plasmoids, to be replaced by a stream from a globe in the north. At that point, Saturn was still in glow mode, the enclosing shroud of its coma.

The closing date for this period was initially from an analysis of the Sumerian *King List* (see Appendix A), and can be verified partially from climatic data. I should point out also that Adam of the Bible, who is Saturn, lived 930 years. Subtracting 930 solar years from 3147 BC, which saw the demise of Saturn, a date of 4077 BC is reached.

I estimate the end of this first period (the "first creation") as 8347 BC, a date derived from the *Chilam Balam* statement about the start of the "first creation" ended 13 Katuns before 3147 BC. The "event" which initiated this count of solar years for the Olmecs would have been the appearance of the brilliant southern ball plasmoids of the "Peratt Column." The form was called "the turtle," and possibly also identified as "the three hearthstones." These would not have been seen unless Earth had already dropped into the lower coma of Saturn.

Additionally, there are two inscriptions that use the Tzolkin and Haab day names corresponding for the year 8347 BC, although this was the end of the first period of the appearance of the ball plasmoids, not the start.

I have estimated, Saturn lit up (went nova) in 4077 BC and established a plasma connection with Earth. For most nations of the Earth, it is this last date which constituted creation, for the "Sun" suddenly appeared.

There will be an urge for the Thunderbolts group to move their polar column and standing sphere to the south -- or to ignore and invalidate it. But Peratt has elucidated nothing with respect to Mars or Venus, and, in fact, these entities never show up among the 4,000,000 petroglyphs which were collected. They do show up in later physical models -- the henges of Northwestern Europe -- and as

petroglyphs which the Saturnians have identified as representing Saturn standing above the north horizon.

Peratt had suggested a "massive aurora" as a shorthand simile for the phenomena, since as a scientist he is not allowed to suggest a planet standing above the Earth's North Pole. Some researchers missed the use of the word "like" and followed up on an urge to identify the polar column with an aurora, despite the fact that an aurora does not assume the shape of a column, and that an aurora moves its curtain south toward the equator with an increase in strength. This also has nothing of the look of lines of electrons in arc mode traveling past the Earth. [\[note 11\]](#)

I will, of course, expand on all this, and explain it piece by piece over the next few chapters.

Endnotes

Note 1 --

The Mesoamerican illusive site of the "city of reeds" -- Tula, Tulan, or Tollan -- is, without a doubt, a recollection of the rings seen in the south. In Mesoamerica the rings were described as bushes; in Egypt the rings were similarly described as reeds.

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Note 2 --

I should also note that the existence of the Duat also explains the Egyptian phrase of "the Nine Bows." The "Nine Bows" have been used in Egyptian inscriptions as a shorthand for all the enemies of Egypt, that is, the people of foreign lands, but in particular with reference to Nubia. Egypt extended geographically from 30 degrees north latitude to 24 degrees at the first cataract at Elephantine (Aswan). The territory further south was Nubia, extending another 4 degrees to Kerma (19.6 degrees latitude). Kerma was a major site since about 3000 BC and the ancient capital of the Kingdom of Kerma since 2400 BC.

At Elephantine the Duat would have stood in the skies at about 56 degrees up from the south horizon, and at Kerma some 61 degrees. This last is the same latitude as Mesoamerica, where, by the table above, nine rings were seen. Thus

the appellation of the "Nine Bows" or "the land (or people) of the Nine Bows" probably entered the Egyptian vocabulary by 3000 BC. After 2349 all the rings disappeared except one and the phrase "Nine Bows" simply meant the foreigners of the "land of the Nine Bows." In the Middle Kingdom of Egypt (circa 2050 to 1492 BC) the phrase had come to mean "enemies."

I should note also that the Egyptian at various times enlisted the people from Nubia as hired mercenaries, specifically as archers.

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Note 3 --

Dwardu Cardona, in "The Original Star Of Dawn," a talk presented in 1994(?), spoke about the Duat and identified their number from Egyptian sources:

"... a clue as to its real nature [of the Duat] comes to us from its description as having been divided into regions each of which, among other things, was called 'qerert' -- an Egyptian word that means 'circle.'"

He continues with an identification of these circles as the rings of Saturn before 3147 BC, a concept with which I disagree, and which is inadvertently made clear in the following quoted text.

"... besides being called 'qerert,' each division of the Duat was also referred to as 'arret,' that is 'a hall.' What is of interest here is that, according to the Papyrus of Nu, these halls of the Duat were seven in number, which, among other things, explains the plurality of circles associated with Ra's habitation."

Ra or Re, which means "sun," was at first the name of the creator God Saturn at the north horizon. It is fairly certain that only three distinct bands were seen around Saturn at that time (as the *I Ching* implies). These seven bands are not the rings of Saturn.

After 3147 BC the name of Ra was transferred to Jupiter seen in the ecliptic, first on a mountain, and later riding his ship across the circles of the Absu (for which see a following chapter). What Cardona here calls a "hall" was called a "mansion" in Egypt as well as in the Bible.

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Note 4 --

The whole of the Absu, being rounded and with a semi-circular opening, looked like the reed huts which were constructed in the region between the Euphrates and the Tigris in Mesopotamia -- both in antiquity and still today.

In the Andes of South America the doorway of the Absu is reflected in the ubiquitous U-shaped ceremonial centers. For all practical purposes, the Absu framed most of the planetary displays seen from the southern hemisphere. Later catastrophic events mostly happened over the northern hemisphere, and were thus seen in the southern hemisphere only within the doorway of the Absu or in the space above.

There are additional references to the Absu among Mesopotamian seals (most of which appear after 2349 BC; that is, after the fall of the Absu) -- for example, showing the Sumerian Enki, God of water, shedding water and fishes from his shoulders, in effect framing a doorway.

Additionally, there are many mentions of "the gates of heaven," or similar phrasings, in the Bible and classical texts. In Job, Chapter 9, the Lord is He who "... alone spreads the heaven ... and [makes] the chambers of the south." In the King James Version the "chambers of the south" is translated as "constellations of the south." But "chambers of the south" is the Egyptian term for the Duat.

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Note 5 --

NASA has formulated a theory to account for the X-rays. The following is from their webpage <http://www.nasa.gov/topics/technology/features/wide-xray.html>:

Scientists first discovered the charge-exchange effect in the mid-1990s while observing comet Hyakutake. "They got quite a surprise," Collier said. "They found an intense source of soft X-rays at the comet's head, which was unusual because comets are cold objects and soft X-rays are associated with hot objects. How could balls of ice emit X-rays? No one could figure it out."

Scientists soon discovered that the X-ray emission was caused by the solar wind, a constantly flowing stream of charged particles that sweeps across the solar system at about a million miles per hour. When highly charged heavy ions in the solar wind collide with neutral atoms found in space, the heavy ions "steal" an electron from the neutrals -- an exchange that puts

the heavy ions in a short-lived excited state. As they relax, they emit soft X-rays.

Hyakutake was not the first, but it could not be neglected, since it passed close to Earth. NASA is still caught up in the snowball theory of comets. The American Welding Society notes that the arcs of electric welding produce "soft X-rays." (<http://www.aws.org/itrends/04-03/feature.html>)

Wallace Thornhill noted in 1993:

"Further evidence in support of the electrical discharge theory was the baffling flare-up of Halley's comet between the orbits of Saturn and Uranus. The nucleus should be frozen and inert at that distance. However a plasma discharge can occur at any time when the electric stress exceeds breakdown potential. It is significant that the flare-up followed some of the largest solar flares recorded. In this case, the Sun was rapidly altering the comet's electrical environment at a far greater distance than normal."

-- from Wallace Thornhill, in "Evidence for the Extreme Youth of Venus" (1993), *SIS Proceedings of the 1993 Cambridge Conference*.

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Note 6 --

There are considerable published papers by Hannes Alfvén on plasma theory, extending to the Universe. See *Cosmical Electrodynamics* (1950, 1963), and *On The Origin of the Solar System* (1954).

See also J. H. Piddington *Cosmic Electrodynamics* (1969); Anthony L. Peratt *Physics of the Plasma Universe* (1992).

As mentioned, there are currently two popular books recently published on this subject, by David Talbott and Wallace Thornhill, *Thunderbolts of the Gods* (2005), and *The Electric Universe* (2007). In addition there has been an explosion of plasma-related web sites.

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Note 7 --

All other catastrophists that I am aware of hold to a busy schedule of activities involving Mars and Earth, into the 7th century BC. These include Alfred de

Grazia, who reiterated his position in the recent book *The Iron Age of Mars* (2009), Donald W. Patten and Samuel R. Windsor with *The Mars-Earth Wars* (1996), and John Ackerman with *Chaos: A New Solar System Paradigm* (2000).

At the Natural Philosophy Alliance conference in 2011, during an Electric Universe panel on mythology, Dwardu Cardona emphatically insisted that Velikovsky's Venus event of 1500 BC, and the later Mars events of 800-700 BC never happened. Van der Sluijs, sitting next to Cardona, nodded in agreement. The Thunderbolts people simply do not want to be associated with the reaction of instant disgust and dismissal that the name of Velikovsky provokes among "scientists". They feel it hurts their acceptance and approval as serious researchers.

A most interesting history of how the polar location of Saturn developed in parallel between Cardona and Talbott (and a number of other people) since the mid 1970s is presented by Cardona in "The Road to Saturn" in *Aeon* (Volume 1, numbers 1 and 3, 1988). From my perspective the essay confuses many later celestial developments, which are included with the initial time period even though they do not belong there. Frequently also events and actions are mistakenly attributed to the wrong planets.

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Note 8 --

Quoted by Leroy Ellenberger from a letter to him by Ashton of September 1, 2007, and sent on in one of Ellenberger's periodic mass mailings, September 11, 2007.

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Note 9 --

Leroy Ellenberger pointed out to me (January 2009) that I missed the following names: K. Anderson, M. Armstrong, E.J. Bond, K. Moss, and A. Scott, R.M. Smith, and A.B. Mainwaring. I should point out that there are also another 44 people listed who are not connected to the Thunderbolts group.

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Note 10 --

- Wal Thornhill's site <http://www.holoscience.com/> has Velikovsky reduced to "*Since then [since Velikovsky's time] sceptical scholars have shown Velikovsky's historical perspective of cataclysmic events to be wrong.*" The sceptical scholars, or their demonstrations, are not listed.
- Dave Talbott's site <http://thunderbolts.info/> has nothing.
- The site Kronia.com, which had an extensive Velikovskian catastrophic exposition, and was owned and operated by Talbott or his associates, has been abandoned.
- Rens van der Sluijs's website used to have details, but all ties to the Thunderbolts point of view have been removed. For van der Sluijs only auroras count.
- Ev Cochrane's site <http://maverickscience.com/> still has considerable texts on mythology.

There are other sites, intimately connected with the Thunderbolts group (and operated under assumed names), which clearly express an interest in plasma and electric issues, and which have retained the list of catastrophes outlined by Velikovsky.

Additionally there are Internet sites which present a catastrophic world-view of the past and are built on Velikovsky's legacy without any connection to the Thunderbolts group.

You might also find information at the *Velikovsky Encyclopedia* at <http://www.velikovsky.info/> and the Velikovsky archive of unpublished documents at <http://www.varchive.org>.

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Note 11 --

Peratt has frequently indicated that the concept of an auroral display is meant as a simile. A presentation authored in 2005 is titled "Evidence of an Influx of Interstellar Plasma from Archaic Z-Pinch Recordings," where the word "interstellar" indicates something beyond an aurora created from a solar wind influx.

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*Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()
units: million == 1,000,000; billion == 1,000,000,000;
AU == 93,000,000 miles.*

Special thanks to H Pluut for the inspiration on speculation.
Special thanks to K Widen for a better diagram of the Absu.



Chapter 6: Alternate Cosmology.

\$Revision: 42.2 \$ (planets.php)

Contents of this chapter: [\[The Accepted Model\]](#) [\[Two Alternative Cosmologies\]](#)
[\[The Solar System\]](#) [\[Something Is Wrong\]](#) [\[Saturn In the Solar System\]](#)
[\[The Genesis of Life\]](#) [\[Endnotes\]](#)

This chapter will present the Solar System as it exists today, and hopefully will give you some idea of relative sizes and distances -- which are almost beyond the imagination. The distances in the Solar system are absolutely huge, while the sizes of the planets are microscopic compared to the Sun. Distances to the stars and galaxies are far, far greater yet.

I shall follow this with an overview of the peculiarities of the Solar System to suggest that there is something wrong. The Solar System looks more like a train wreck than a carefully crafted clock.

Next, a description of how Saturn may have first entered the Solar System before the Cambrian, repeatedly returned at intervals of millions of years, and then in the last three million years returned to stay.

Last, I will suggest that the rise of complexity in life-forms after the Cambrian is due entirely to the periodic entry of Saturn into the Solar System. The series of glaciations, which started some 3 million years ago (mya), continued intermittently until very recently, indicating that Saturn had remained in the neighborhood of the inner planets during that time. This period gave rise to a dozen species of hominids, of which we are the last survivors. That will be covered in the next chapter.

The Accepted Model

Cosmologies are models of how things work on the grand scale of everything. Cosmologies thus propose to explain the workings (and origin) of the Universe, the Solar System, the planets. We should start with the accepted model.

To understand where everything came from -- in terms of the "accepted cosmology" -- it would benefit the reader to be familiar with Bill Bryson's book *A Short History of Nearly Everything* (2003) which makes easy reading and will inform you properly. The book starts with the "Big Bang" and progresses, in following chapters, through atomic physics, geology, evolution, and the history of the hominids. (The development of humans in historical time is not covered.) Of particular interest are the vignettes which illustrate the personalities of the people and the processes involved in the ideas which have become current.

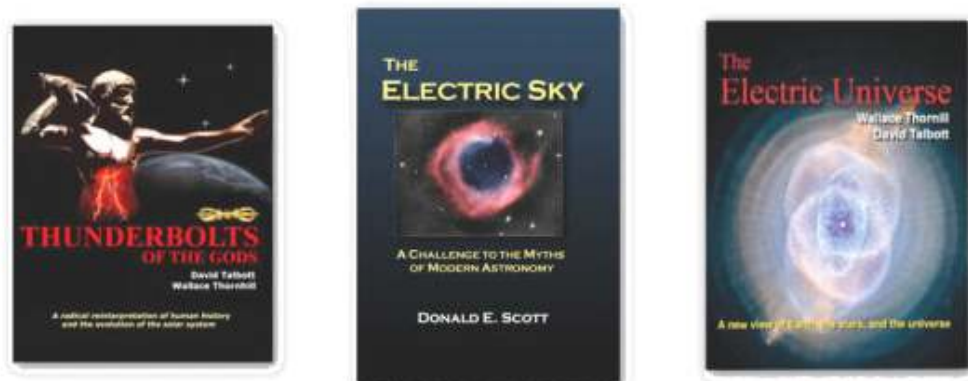
I could list a few objections -- for example, on the first page Bryson has creation starting from "a singularity" at the beginning of time, that is, at the start of the Big Bang. A singularity, however, is a mathematically undefined point, which here becomes a physically defined point. An undefined mathematical point, like in dividing by zero, starts yielding infinities but that does not mean that it contains the whole infinite Universe. However, it doesn't matter; this is an abbreviation by a popular writer and, overall, the book is captivatingly written. Occasionally you will run into a statement which clashes with all of common sense, like, *"At this point, 4.5 billion years ago, an object the size of Mars crashed into Earth, blowing out enough material to form a companion sphere, the Moon."* (Only astronomers would have fantasies like that.) However, as I progressed through the book (and came ever closer to the world of today) I had fewer and fewer objections. I'll describe the current Solar System and its planets further below.

Two Alternative Cosmologies

But first we can describe alternative cosmologies. Below are two cosmologies which have sprung from the efforts of established science -- yet they are alternatives to the dominant paradigm. I am not listing here the work of Immanuel Velikovsky, which started the current speculations in the 1950s, and which is discussed elsewhere. Also, a dozen people keep nagging at hair-splitting re-evaluations of Velikovsky's gaps in the history of the Middle East. I will not list this line of inquiry either. And there are still too many folks actively engaged in attributing all causes to meteor impacts. Meteor impacts belong with *Speculative Cosmologies* even if proposed by "established scientists." The flood of other weird theories has abated somewhat, mainly due to the mass of criticism that "ancient maps" have generated. See the Appendix "Other Cosmologies" for additional speculative cosmologies. [\[note 1\]](#)

Electric Universe

A very important alternative to the handed-down cosmology is the book by David Talbott and Wallace Thornhill, *Thunderbolts of the Gods* (2004), promoted, along with other titles (shown below), at [\[http://www.thunderbolts.info\]](http://www.thunderbolts.info).



*[Image: Thunderbolts of the Gods, The Electric Sky, The Electric Universe.
After www.thunderbolts.info.]*

Talbott and Thornhill worked with the editorial team of Amy and Mel Acheson, Dwardu Cardona, Ev Cochran, Walter Radtke, Don Scott, C.J. Ransom, Rens van der Sluijs, and Ian Tresman (all editors, publishers, and contributors to the *Kronia* site, *Thoth* newsletter, *Aeon* magazine, and the *SIS*). Together these people represent an enormous block of knowledge. The theory dates to the electric theory of Michael Faraday (1791 - 1867), the investigations by Johann Geissler (1814 - 1879), and the mathematics of James Clerk Maxwell (1831 - 1879), and specifically to the plasma concepts of Kristian Birkeland (1867 - 1917), Irving Langmuir (1881 - 1957), Hannes Alfvén (1908 - 1995), and Charles Bruce (1927 - 1969).

Wallace Thornhill's contribution has been immense. With the application of plasma theory and electric forces, everything suddenly fell into place. Everything, that is, in the realm of an alternative cosmology. And what a twist to have a cosmology which is frequently held to be a lunatic fringe theory boast of such staid ancestors. But it requires a slight change in thinking -- a new conceptualization. A grounding in electric theory (or practice) helps. If you have an inkling of atomic theory, can imagine ions, and feel comfortable with electricity, take a look at the websites of [\[Don Scott\]](#) and [\[Wal Thornhill\]](#), who take up the topic of plasma and an Electric Universe. Don Scott's website does a

great job of explaining the plasma aspects. See also a website of [\[Anthony Peratt\]](#) of Experimental Programs at Los Alamos National Laboratory.

I recommend Don Scott's recently published book, *The Electric Sky* (2006), which details the plasma concepts at planetary and galactic levels. It may be the first time this information has been brought to general readership even though the concepts have been around for 150 years and have been part of electrical engineering curricula for as long.

Talbott and Thornhill followed up with *The Electric Universe* (2007), which represents an excellent introduction to plasma and the electricity of space, the sun, comets, and planets.

Plasma theory is simple, based entirely in classical physics, and has much higher predictive value than the standard model of the Universe. However, there is an immense problem with general acceptance. The problem is attributable in part to academic orthodoxy. [\[note 2\]](#)

"... my impression has been that much of what Thomas Kuhn has called 'normal science;' has degenerated into mindless support of orthodoxy and the so-called 'consensus of opinion,' which is arrived at by a process of one scientist repeating what another has said in a kind of mirror-gallery regression for the fear of falling out with his (or her) colleagues. In the end nobody seems to know how this 'consensus' has originated, but anything that is out of step is ruthlessly suppressed."

-- V. Axel Firsoff, writer and astronomer (1910 - 1981).

Planetary Breakups

A second alternative (but limited) cosmology of some interest is found in Tom Van Flandern's book *Dark Matter, Missing Planets and New Comets* (1999). Van Flandern is a well known astronomer, with interesting theories on planet formation, and other topics, approaching the catastrophic. A promo for his book follows: [\[http://www.metaresearch.org\]](http://www.metaresearch.org)

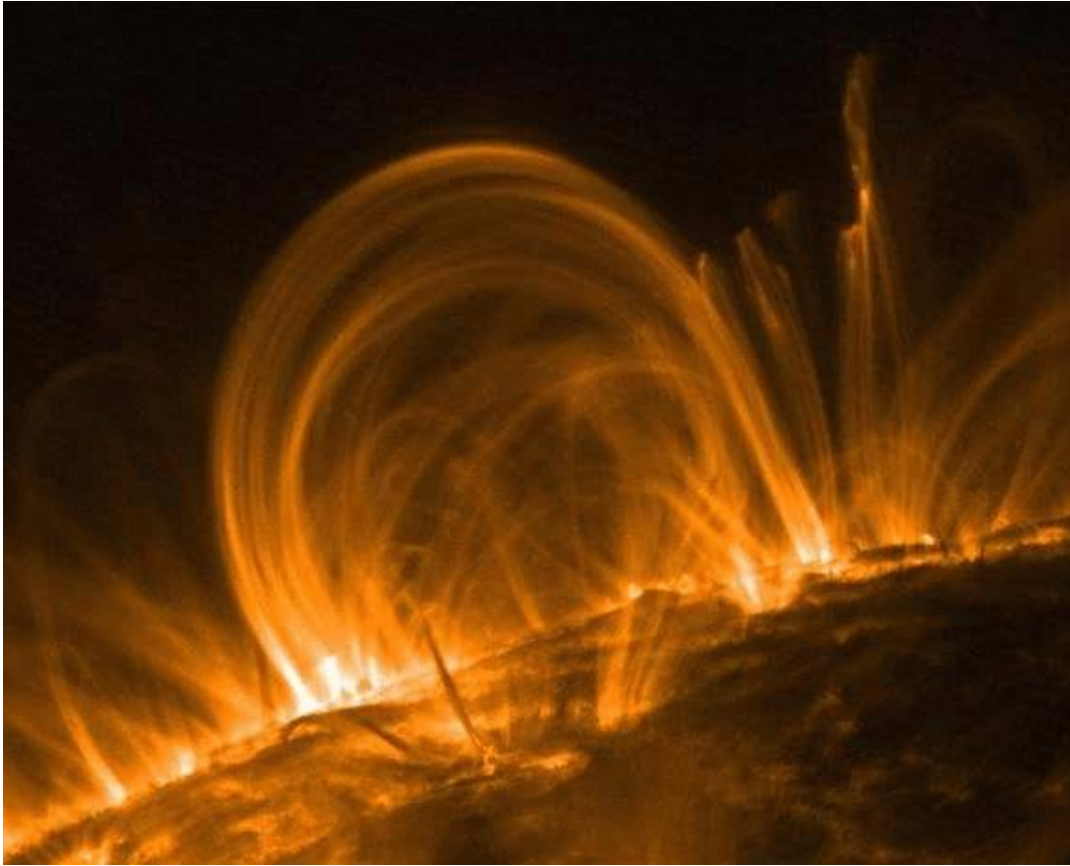
"Alternative for the origin and nature of the universe; deductive models for the origins of stars, planets, moons, comets, asteroids, meteoroids, rings, Sun and planet spots; the latest on the hypothetical "tenth planet" beyond Pluto; an alternative to the Oort cloud of comets and the "dirty snowball" comet model; and much more. Since the book deals primarily with

observational puzzles and anomalies that don't fit conventional models, many viable alternative models are described."

Van Flandern's main contribution is a "planetary breakup hypothesis as the origin of asteroids and comets," and he offers several mechanisms which might result in a breakup (explosion) of a planet. I think his most interesting theory deals with the formation of planets (and satellites) as expulsions from stars (and planets). He uses a model based on mechanical interactions. The results are close to the "electric universe" model and could probably be integrated with the latter. I will return to this further below. Among astronomers, Van Flandern is the dean of gravitational theory.

Van Flandern believes comets are solid and thus predicted that when an 800 pound projectile was to be fired from the spacecraft *Deep Impact* on July 4, 2005, to impact *Comet Tempel 1*, it would make a small dent only, and vaporize the copper anchor. The NASA space folks predicted that the anchor would blow straight through the "snowball" nucleus of the comet. My money was on Tom Van Flandern, and his predictions proved correct. Thornhill also accurately predicted the energy exchange, the flash, and other "surprising" results. See my notes on this at the Appendix "Deep Impact."

Additionally, Van Flandern's book (and his website) address more speculative matters, such as gravity, quantum physics, and the Big Bang. He follows Halton Arp on red-shift. [\[Halton Arp\]](#) is an observational astronomer who has compiled an extensive array of data which shows the failure of the accepted relationship between red-shifted light and speed of recession for galaxies. Arp has also demonstrated that galaxies give birth to other galaxies, in pairs, along their rotational axes. See his book *Seeing Red* (1998).



[Image: The Corona of the Sun. The tongues of flames reach thousands of miles up from the surface. Earth would be lost in any of these. After NASA via Don Scott.]

The Current Solar System

To understand the Solar System, we will need a sense of scale, but the representation of the Solar System in any graphic form is difficult. None of the orbits of the Solar System can be drawn to a scale which will show planet sizes at the same time. Below, however, is a scaled presentation -- the Burnham model -- which places the orbits to within a double arm span, although using invisibly small specks for planets. This is from Don Scott's website [<http://www.electric-cosmos.org/>].

We need to start with two facts: the radius of the Earth's orbit, called an Astronomical Unit (AU), 93,000,000 miles (150,000,000 km), and the speed of light, 186,000 miles per second (300,000 km/sec).

The Burnham Model

"We sketch the orbit of the Earth around the Sun as a circle, one inch [25 mm] in radius. That sets the scale of the model. One light-year is one mile [1.6 km] in this model."

A light-year is the distance traveled by light in a year -- 63,240 AU, which is 5,878,630,000,000 miles. An inch represents an AU, and thus 63,360 inches (a mile) almost exactly represent a light-year.

"The Sun is approximately 880,000 miles in diameter. In the model [this] scales to $880,000 / 93,000,000 = 0.009$ inches [about 1/4 mm]; (Approximately 1/100 of an inch in diameter). A very fine pencil point is needed to place it at the center of the (one inch radius) circle that represents the Earth's orbit."

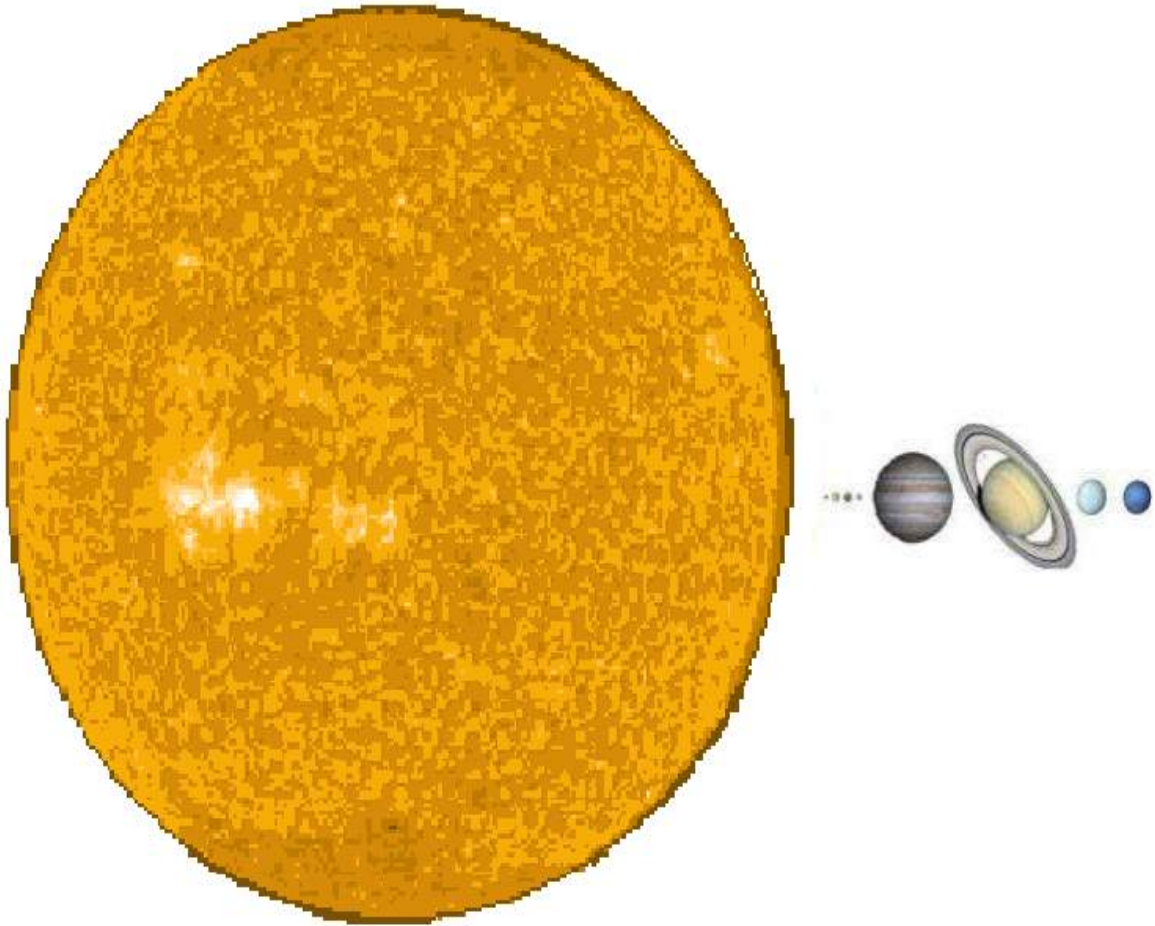
Neglecting Pluto, the remaining planets all fit within a radius of three feet [a meter] from the pencil-point Sun.

"The nearest star to us is over four light-years away. In our model, a light year is scaled down to one mile. So the nearest star to us is four and a half miles away in our model. So when we model our Sun and the nearest star to us, we have two specks of dust, each 1/100 inch in diameter, four and a half miles [7.2 km] apart from one another. And this is in a moderately densely packed arm of our galaxy!"

Reflect on this for a minute. These distances are absolutely astounding.

The light of the Sun takes 8 minutes to reach us, traveling 186,000 miles per second (300,000 km/sec). A space ship traveling at 20,000 miles per hour (32,000 km/hr) (which is the minimum required to break away from Earth) would reach the Sun in about 150 days. The same ship traveling to the nearest star would arrive more than 100,000 years later and then would look for a place to land.

Relative Sizes



[Image: Relative sizes. These are not the distances between planets. Sun (flaming atmosphere not shown), Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune. Illustration by J. Cook.]

The Sun and the other planets are shown to scale above. The Moon, not shown, is a little smaller than Mercury -- the small dot next to the Sun.

The table below combines the sizes of the planets with the distances from the Sun. It is amazing to realize how tiny our domain in the Solar System is. An AU, below, is 93,000,000 miles.

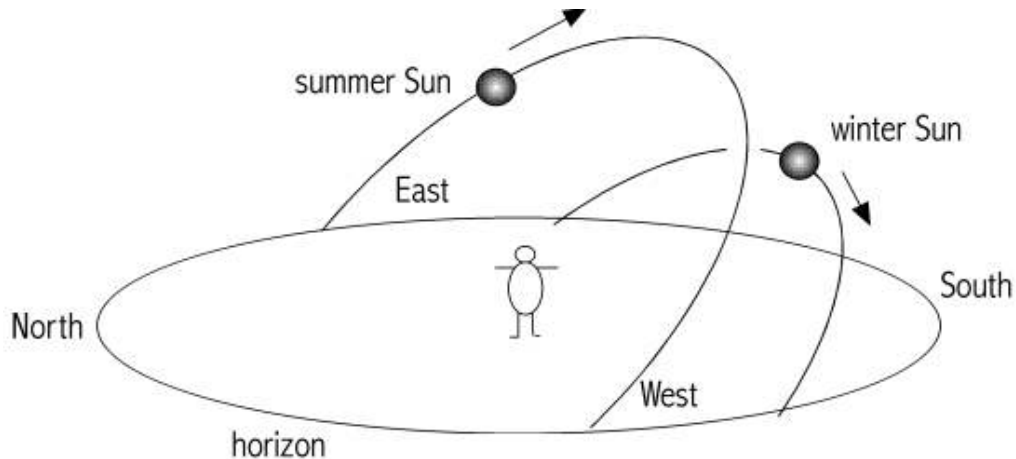
object	diameter [miles]	relative size	distance from sun [million miles]	distance from sun [in AU]	mass, kilograms [x10exp24]
Sun	864,000	1000	--	--	1,989,100
Mercury	3,100	4	28-43	0.3-0.47	0.3
Venus	7,700	10	67	0.72	4.8

Earth	7,900	10	93	1.00	5.9
Moon	2,157	3	93	1.00	0.07
Mars	4,200	5	142	1.53	0.6
Jupiter	88,700	100	484	5.19	1898.6
Saturn	72,000	80	887	9.53	568.4
Uranus	32,000	40	1,787	19.17	86.8
Neptune	31,000	40	2,797	32.19	102.4

The puzzling thing about our Solar System is that the thinly spread-out planets beyond Mars seem at odds with what little we know of other star systems where the planets which have been detected are very close to their star, although it is possible that we just have not noticed the outlying planets of other systems. We have, in fact, not seen any of the planets of any other stars, we have only observed the transits of the primary (a brief dimming of the star), or the gravitational disturbance these planets produce to their stars (a back and forth movement).

Some Curious Facts

- All the planets travel about the sun in nearly the same plane, more or less at the Sun's equatorial plane, in a band called the ecliptic, which is actually defined as the plane of the Earth's orbit. Thus, seen from Earth, the Sun also travels in this band in the sky. The ecliptic is relatively easy to spot in the night sky if one or two planets can be found. Because the Earth's rotational axis is tilted, however, the ecliptic looks tilted and wobbles across the sky on a daily basis, and differently at different times of the year. Only at the equinoxes (March 21 and September 21) does it stand still, stretching from directly east to directly west.
- In addition to its wobble, the ecliptic is inclined at an angle. It rises up from the southeast at an angle in mid winter, and six months later it rises out of the northeast. The height above the south horizon (in the northern hemisphere) depends on the latitude from which it is viewed. At the equator it mostly stands almost directly overhead, and shows very little wobble. Near the North Pole all of the ecliptic shows above the horizon during summer, not at all during winter.



[Image: The Sun in winter and summer for a mid latitude. Illustration by J. Cook.]

- As a result, the days and nights are nearly equal during all of the year in the tropics, and days get longer with summer (and shorter with winter) the further north one is located.
- All the planets orbit about the Sun and rotate about themselves in the same direction -- counterclockwise as seen from far above the North Pole of the Sun or the Earth -- except Venus, which slowly rotates backwards around itself, and Uranus, which seems to be lying on its side.
- All of the "regular" planetary satellites (those which obviously are not irregularly-shaped and small-sized pieces of asteroidal debris) rotate in the same direction, and at the equators of the various planets, with only Neptune's moon Triton in a retrograde orbit. [\[note 3\]](#)
- All the planets travel in ellipses about the Sun, but it would be impossible to tell these ellipses from circles at any visual scale, with the exception of Mercury, which doubles its distance from the Sun over the course of each orbital rotation.
- The planets closest to the Sun travel the fastest.
- In the conspicuous gap between Mars and Jupiter there orbit millions of rocks and asteroids -- an accident of the remote past.
- Our Sun is a star. The next nearest star in the Milky Way (our galaxy) is 4.5 miles away on the scale of the Burnham Model presented above -- another

speck of dust -- but 4.5 light-years in actuality. This is a distance of 26,400,000,000,000 miles -- 26.4×10^{12} miles (42,500,000,000,000 km).

- The Milky Way galaxy contains billions of stars. The distance to the nearest galaxy is incomprehensible. There are billions of galaxies beyond that.

Simulations of space travel as seen in films are wildly inaccurate, but they are part of popular culture, part of how we view ourselves as "in control," even of galactic distances. Stars flit by on *Star Trek*, yet the stars would not noticeably move even at 1000 times the speed of light.

This perception of space as conquerable and controllable results from the fact that planet sizes and interplanetary distances, and by extension the distances involved in the Universe, cannot be properly imagined in our minds. Big numbers just remain meaningless big numbers.

The emptiness of space, the distances between planets, and the diminutive sizes of the planets in relationship to the sun, will remain meaningless unless they can be seen and experienced. This requires a very large-scale model -- small enough to see the distances, yet large enough so that the planets do not disappear altogether from sight.

The distances, the magnitudes, and the emptiness involved in our diminutive occupation of a small parcel in an outswEEPing arm of a remote galaxy, calls for a reduction of these dimensions to a physical model which, if it could be seen, might evolve in our minds some reasonable concepts about the relative magnitudes. The distances involved in our solar system are so large as to be virtually unimaginable and as a result meaningless. Stellar distances are 5 orders of magnitude (100,000 to 1,000,000 times) larger yet. The Burnham Model is a valiant attempt to visualize the distances.

Planet Inclinations

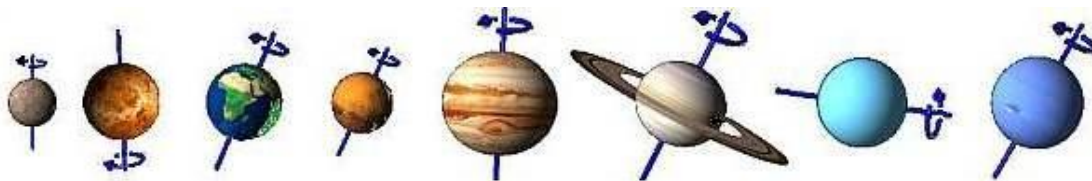
The next table lists the inclination of the axes of rotation of each planet to each planet's orbit (actually the deviation from the perpendicular to the orbit), the inclination of the orbit to the ecliptic, and the eccentricity of the orbit. Since the ecliptic is defined as the plane of the Sun and Earth, the "inclination of the orbit to the ecliptic" is a rather strange measure which in effect places the Earth at the

center of the Universe. I have also shown the inclination of the orbits of the planets to the equator of the Sun (by subtracting this from the inclination of Mercury which orbits the Sun at its equator, 7 degrees from the ecliptic).

object	inclination of the axis to orbit [degrees] (C)	inclination of orbit to ecliptic [degrees] (A)	inclination of orbit to Sun's equator [degrees] (B)	eccentricity of orbit
Mercury	0	7.00	0.00	0.206
Venus	177 *	3.39	3.61	0.007
Earth	23.4	0.00	7.00	0.017
Moon	6.7	0.013	6.98	0.017
Mars	25.1	1.85	5.15	0.093
Jupiter	3.13	1.31	5.67	0.048
Saturn	26.7	2.49	4.51	0.056
Uranus	97.8	0.77	6.23	0.047
Neptune	29.6	1.77	5.23	0.009

* within 3 degrees of complete inversion (180 degrees)

Axial Inclinations



*[Image: Planetary axes of rotation. Planets sizes not to scale.
Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus,
Neptune. After www.redshift-live.com.]*

Something Is Wrong

The above information describes how the Solar System is currently configured, but it was not always thus. The first clue that something is awry is the fact that half the planets in our Solar System have the axes about which they rotate tipped 24 to 27 degrees to the perpendicular of the plane of their orbits. One is lying on its side and one is upside down and nearly standing still. (The relative sizes shown in the graphic above are not entirely correct; some are enlarged for comparison.)

When compared to the spin axis of the Sun, the spin axes of the planets fall into two distinct groups. Jupiter, Mercury, and Venus all have their axes at about the same inclination as the axis of the Sun. The spin axes of Saturn and the planets Earth, Mars, and Neptune are all within less than one degree of 30.9 degrees different from the spin axis of the Sun. [\[note 4\]](#)

Mercury revolves at the equator of the Sun, but its orbit is understood to be inclined by 7 degrees from the ecliptic. The ecliptic is defined as the plane of the Earth's orbit. The inclination of the Earth's orbit thus deviates by zero degrees from the ecliptic but it is actually at an angle of 7 degrees to the Sun's equator. The discrepancies in the rotational axes of the planets show more clearly if they are all compared to the rotational axis of the Sun.

object	inclination of orbit to ecliptic [degrees] (A)	inclination of orbit to Sun's equator [degrees] (B)	inclination of the axis to orbit [degrees] (C)	inclination of of spin axis to Sun's axis [degrees] (D)
Mercury	7.0	0.0	0	0.0
Venus	3.4	3.6	177	-0.6
Jupiter	1.31	5.69	3.13	8.82
Earth	0.0	7.0	23.4	30.4
Mars	1.85	5.15	25.1	30.25
Saturn	2.49	4.51	26.7	31.21
Neptune	1.77	5.23	29.6	31.83

In the chart above, by adding 7 degrees to the inclination of the orbit to the ecliptic ("A" in the chart above) for each of the planets, the orbital inclination of a planet to the equator of the Sun ("B") is found.

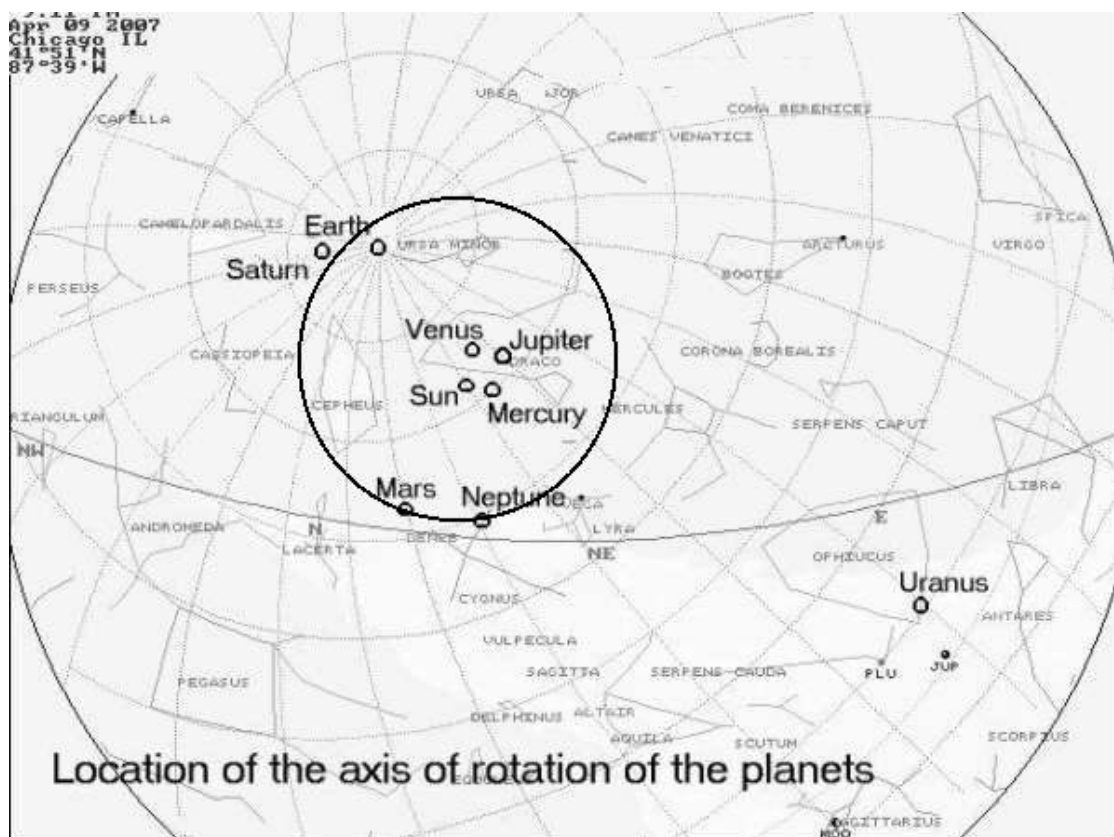
By adding the inclination of the orbit to the equatorial of the Sun ("B") to the inclination of a planet's spin axis to the orbit ("C"), the amount that a planet's spin axis differs from the spin axis of the Sun ("D") is found.

This corrects the data we are usually presented. Here it shows the angle of the spin axes of all the planets measured against the axis of rotation of the Sun. I have left off Uranus which has a spin axis located 8 degrees below the plane of the ecliptic, and the Moon. [\[note 5\]](#)

As can be seen, Mercury is the Sun's moon, and the only planet which behaves appropriately as a satellite. The spin axis of Venus is almost parallel to the Sun, but upside down. In that the spin of Venus has been measured as slowing down, it will become another Moon of the Sun in the far future.

Jupiter is at an angle of 8.8 degrees. All the remaining planets are tilted at 30 to 32 degrees with respect to the spin axis of the Sun. The congruence of the tilt of the axes of four of the nine planets becomes even more noticeable when it is realized that all fall to within a degree of each other.

Nothing currently explains why the rotation of Venus is backwards, or why Uranus lies on its side. Nothing explains why Mercury rotates at all, except that it is obviously the Sun's moon.



[Image: The locations in the "dome of the stars" to which the rotational axes of the Sun and the planets point. Locations from <http://nssdc.gsfc.nasa.gov/planetary/planetfact.html>]

The Earth's axis of rotation points, today, to the star "Polaris" in the constellation Ursa Minor. The axis of rotation of the Sun points to a location a

few degrees east of the main part of the constellation Draco.

Although all the planets are on orbits which are tilted with respect to the equator of the Sun, and the axis of rotation of each planet is additionally tilted with respect to its orbit, the rotational axes of the planets all point to a place in the sky which either falls close to where the axis of the Sun points, in Draco, or are displaced by about 30 or 31 degrees. The 30-degree circle around the location of the Sun's axis also describes the path through the stars taken by the Earth's polar axis over the course of 26,000 years -- the precession of the polar axis (which is also the path of the precession of the equinoxes). To sum up:

- Jupiter, Mercury, and Venus all point to the same region of the constellation Draco as the axis of the Sun. It is fairly certain, however, that Venus is not part of the original Solar System.
- Only Jupiter and possibly Mercury and the Moon are the original satellites -- that is, the planets -- of the Sun. There were originally three or more additional planets, of which the asteroids are the remnants. Reasons for considering Venus as a recent addition to the Solar System will be made clear in a later chapter.
- The axes of the planets Earth, Saturn, Mars, and Neptune point to diverse locations all about thirty degrees removed from where the axis of the Sun points. I would consider these planets as foreign to the Solar System, although this is not proof. [\[note 6\]](#)
- Uranus has an axis of rotation which falls about 95 degrees away from the axis of the Sun because it is lying on its side (actually 10 degrees below the ecliptic). I will suggest in following chapters that this has been the case since remote antiquity. It can be traced back to the Upper Paleolithic, and was likely seen by Homo Erectus.

Saturn and the Solar System

After the Precambrian (560 million ya) and before the Triassic or Jurassic (200 million ya), when Earth was still traveling with Saturn, the infrequent excursions into the Solar System would radically change the heat and radiation received by the Earth as Saturn approached the Sun and changed its coma (for periods of perhaps 15,000 years at a time). The orbit of Earth around Saturn might have been altered, accounting for some of the long-lasting climatic

changes. And Earth would become suddenly subjected to plasma discharges from Saturn at arc level as Saturn got yet closer to the Sun -- with all the attendant results. Certainly such events would cause some massive global changes -- severe changes in climate and geological disturbances. It apparently was the cause of the periodic extinctions and subsequent speciation.

Once released from Saturn (200,000,000 years ago), the Earth would have orbited the Sun. But the periodic plasma contacts by Saturn would have repeated, although at a different level of intensity, because the two planets would certainly have come close enough -- both physically and electrically -- to exchange electric arcing. Plasma thunderbolts can travel millions of miles. (In a later chapter I will describe a return lightning strike from Jupiter to the Sun in 685 BC, witnessed worldwide, which traveled 480,000,000 miles -- 773,000,000 km.)

A plasma contact from another planet will change the climate. If the plasma arc is localized, it will burn giant craters on land surfaces, vaporize material, raise stupendous clouds of dust, and explosively launch the dust but also large rocks. If the arc strikes water it will bring ocean water to a boil, raising clouds into the stratosphere which will condense to snow or freezing rain. If this happens near land an ice cover will form, with a much longer climatic effect. Conditions on Earth would be stable for very long periods of time, and then Saturn would reappear in the sky and a brush with death would ensue for the planets near the Sun. The enormous changes in the Earth's climate over the last 500 million years attest to this.

Saturn thus kept returning to disturb the inner planets of the Sun, although not always to the same degree. But it is not likely that Saturn would ever come very close to any of the inner planets (that is, within a few million miles), because even a few degrees difference in orbital inclination adds up to millions of miles of separation when two planets are both the same distance from the Sun and in the same sector of the ecliptic. [\[note 7\]](#)

In addition, planets do not collide, for they are each protected by their electric field, that is, by their plasmaspheres. Planets do not see each other electrically unless the outer edges of their plasmaspheres touch, generally involving the plasmasphere tail of one planet. Then the plasmaspheres reform, the difference in charge between the two planets, now enclosed in a single plasmasphere, will cause a sudden stupendous repulsive electric field impulse (force). The shock of sensing an electric field is instantaneous and massive. A planet like Earth could

be moved to a much larger orbit -- 15,000,000 miles (24,000,000 km) further from the Sun, as in 1492 BC.

This would be followed with an attempt to equalize charge -- resulting in an arc between the two planets which could travel millions of miles. In the case of Saturn and Earth, the arcing lasted for a thousand years.

Saved from Destruction

You might wonder why the Earth was not utterly destroyed with the repeated massive electric field contacts and plasma discharges from Saturn during the previous four billion years. Mars and the Moon and all the planetary satellites have been dried up, evacuated of any atmosphere, and sculpted with craters and scars. Only Earth, Venus, and Titan (a satellite of Saturn), have atmospheres. And only Earth has an atmosphere which does not consist of poisonous gases. Only Earth currently has unfrozen water, and lots of it. During most times the Earth was at a distance from the Sun so as not to be either fried to a crisp or turned into a frozen wasteland. And only Earth seems to be crawling with life. How did we escape the destruction that other planets have experienced? [\[note 8\]](#)

The answer apparently lies with the unique combination of our particular distance from the Sun (which actually is not all that critical), the existence of a magnetic field, lots of water and atmospheric water vapor, an atmosphere, and a fast spin. Earth and Mercury are the only inner planets with a magnetic field. However, Mercury has only a very slight magnetic field currently. And Mercury also is but a small dried-up prune of a planet, nearly standing still, baked ceaselessly by the Sun, and only a little larger than our Moon. It is the Sun's moon. No hope for life there.

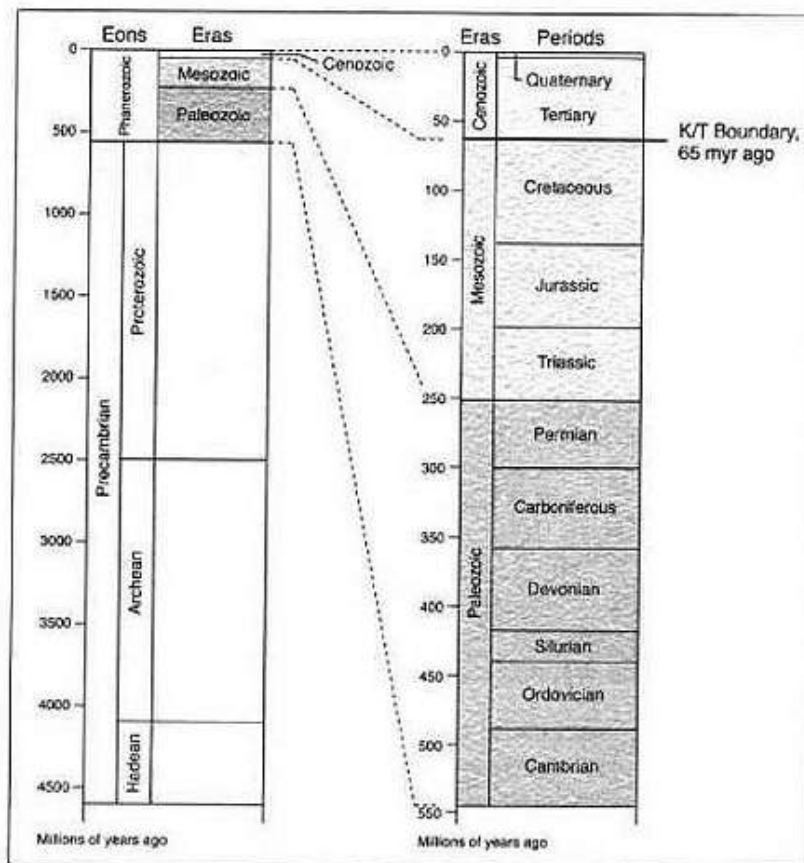
The Earth's magnetic field protects the atmosphere with a tightly held ionosphere. The atmosphere and the oceans, or the shallow inland seas at an earlier time, in turn deflected much of the damage of any electric plasma strike directed at Earth through the vacuum of space. [\[note 9\]](#)

We were also saved from possible obliteration during the nova event of Saturn in 4077 BC by being located below Saturn rather than at its equatorial plane. Otherwise the nova blowout might have brought humanity to an end, like a similar nova event nearly obliterated all life at the end of the Permian, 250 million years earlier, when Earth was still orbiting Saturn at its equator. At that time Earth suffered plasma discharges at equatorial level to the shallow seas of

Central Africa or the Sahara, resulting in a glacier which covered South America, North Africa, and India -- which were joined together at that time.

The Genesis of Life

For the sake of readers not familiar with terms like "Precambrian," "Permian," and the like, I am reproducing a chart of the biological and geological ages of the Earth below -- to scale.



[Image: Geological and biological eras of the Earth. After Leanne Olds.]

The last 500 million years represent most of the complex life-forms of the Earth; the very last portion of which represents the era of modern humans.

- 560 mya: Cambrian explosion; 20 phyla established;

first animals with hard exoskeletons.
- 350 mya: Devonian. First land plants and animals.
- 250 mya: Permian mass extinction.
- 60 mya: Primates (end of dinosaurs); 30 mya: last extinction
- 12 mya: Modern plants and animals;
- 3 mya: glaciers, hominids;
- 0.1 mya: h.sapiens;
- 0.06 mya: Cro-Magnon

A few billion years ago, the Earth must have been in a condition similar to what Venus experiences today -- a cooling crust, unremitting volcanism, ceaseless lightning, and a turbulent poisonous atmosphere -- conditions which grind rocks to dust and build landscapes. Add water to this mix, and couple it with extreme electric conditions, and you have the makings for the genesis of life. This will probably happen on Venus but it will take some billions of years.

These same conditions were probably what first brought complex molecules and self-replicating molecules into existence on Earth. Experiments with a reducing hydrogen atmosphere, methane, ammonia, water, and an electric arc have produced many of the organic compounds which form the basis of life. This is, in fact, a popular high school Science Fair experiment. More complex versions of this experiment have produced the long-chained polymer molecules which are also needed and recently have generated cell-like enclosures and the basics of RNA. The probability of achieving a living organism is not all that astronomically high. However, no one has had the time to run the experiments for a half billion years.

But Earth did run these experiments, for nearly 4 billion years. During almost all of that time, "life" never went very far beyond the simplest forms. The "progress" was incredibly slow. And it occurred in two or three spurts. Most of the 4-billion-year-long era is called the Precambrian and it extends over nine-tenths of the history of the Earth.

Early life-forms may not even have had cell walls. But after a half billion years, 3.2 billion years ago, the first cellular organisms (prokaryotic cells) show up in the geological record. These are simple microscopic single-cell forms, akin to bacteria and blue-green algae. They have cell walls and a single chromosome, but no nucleus. There is also evidence of very early photosynthesis pointing to the slow creation of atmospheric oxygen (although the Oxygen may very well have been extant).

After another two billion years (at 1.6 or 1.2 billion years ago), the much larger eukaryotic cells -- cells with a nucleus and other inclusions like mitochondria --

show up. And then, near the end of the Precambrian (560 million years ago) we start to see the first multicellular soft-bodied organisms (worms and plants) -- by evidence left as impressions in mud and sediment. The explosion of life in the Cambrian, and all that followed, is but a continuation of this. However, despite the high complexity of life-forms which eventually develop, it is the first forms, the simple prokaryotic cells (cells without a nucleus, like bacteria), which still constitute the bulk of living tissue today. Gould has estimated that bacteria and other single cell organisms constitute 80 percent of the biomass of Earth today. [\[note 10\]](#)

The three discontinuous steps in the development of cellular complexity are approximately 650 to 700 million years apart. The geology of the Precambrian follows a similar series of geological alterations at 700 million year intervals, paralleling the development of life-forms. I suspect that the cause of each of these alterations was a mass expulsion and severe plasma blasts initiated by Saturn -- a nova event. Many organisms continued to exist throughout the Precambrian because the life-forms remained below the surface of the Earth's waters.

At the close of the Precambrian we see another massive destruction of the terrestrial landscape. Following this is the most impressive diversification of the complexity of life ever. It is as if species spring up out of nowhere. Some 20 phyla show up for the first time, although some date from before the Cambrian. But only half of them last through the extinctions of the following 500 million years, and no new phyla were ever established again.

The genesis of life (barring the complexity of the Cambrian) may very well be a condition regularly experienced by planets throughout the Universe. The process is almost predictable. Certainly the chemistry -- methane, hydrogen, and carbon dioxide gases, water, and electric discharges -- is common, and most of the planets that we have detected elsewhere are close enough to their star to receive heat from their primary.

However, I suspect plasma activity is required to create advanced life-forms -- not a continuous flow, which will destroy all the cellular forms already in existence, but periodic bursts, short enough (15,000 years) to allow a portion of the cells to escape complete destruction but long enough to effectively alter millions upon millions of the organic chemical structures of the remaining cells, almost all of which will die off. A few will survive, with altered forms and functions. This is what we would otherwise identify as the slow "random"

process of "natural selection" -- but with a billion years of changes occurring all at once. Left to itself, random changes from chemicals, heat, and Gamma rays will never create anything beyond bacteria -- even given the span of the billions upon billions of years ascribed to the "life" of the Universe. A single nova event at the end of the Precambrian did what the previous 4 billion years had not managed to accomplish. [\[note 11\]](#)

The Earth today would still be largely populated by the ocean-bottom plants and animals of the Precambrian -- seaweed, sponges, and worms -- if it had not been for the much more frequently repeating series of plasma discharges which started some time after the Cambrian. These were completely different from the infrequent novas; they involved attempts at charge equalization by Saturn on reaching the neighborhood of the Sun, a space that was regularly traversed after the Cambrian. Plasma flow is limited by the short time duration that Saturn was relatively close to the Sun on its path through the Solar System.

I would vote for life being almost universal throughout the Galaxy. But I doubt if any of the life-forms will ever get beyond the simplest organisms. It is likely that life anywhere else will never go beyond sponges and trilobites.

Endnotes

Note 1 --

The "ancient maps" controversy involves an interpretation of the Piri Reis Map of 1513. Some authors claim that the map shows an ice-free Antarctica. This was used in books by Graham Hancock as evidence for Antarctica once having been Atlantis.

[\[return to text\]](#)

Note 2 --

David Berlinski, author of *A Tour of the Calculus* (1996), noted, *"There is no culture of criticism in science, which is a great weakness in Western civilization."* Scientists *"dominate the agenda. They define the questions that can be answered."* And, of course, only they provide the answers. (Quoted from an interview by Julia Keller, *Chicago Tribune*, April 4, 2000.)

Don Scott, in a rebuttal to Tim Thompson's critique of the "Electric Sun" theory writes as follows:

"We stand at a time in scientific history that will be embarrassing to look back on from the vantage point of the next century. An entire subgroup of science consisting of a majority of astrophysicists and cosmologists is now -- and has been -- smugly ignoring the fruits of 150 or so years of electrical science. This subgroup feels perfectly confident in postulating the existence of processes and entities that cannot be verified experimentally in earthbound labs. But that doesn't mean those processes can't happen in space, they say. When there are perfectly valid electrical explanations for certain phenomena, it is irresponsible to ignore those explanations and invent new science to avoid using them. People will ask, years from now, How could they have ignored electricity in space when it was staring them in the face?"

*"Classic astronomy (and its offshoots: helioseismology, astrophysics, cosmology, etc.) have never made any real predictions that turned out to be true although they are past-masters at inventing dynamos and invisible entities to explain things **retroactively**. After-the-fact explanations are easy, especially if you can get away with saying, The hidden dynamo did it ... [C]lassical astronomers were wrong about how the auroras are powered, about the temperature of Venus, about the rocky nature of comets, about x-rays coming from comets and other objects, about the existence of natural radio emissions from the planets. And I claim they are wrong about many things they are now saying about the Sun."*

-- Donald E. Scott, [\[http://www.electric-cosmos.org/Rejoinder.pdf\]](http://www.electric-cosmos.org/Rejoinder.pdf)

Academic orthodoxy is not limited to astrophysics. The following is from Mikey Brass, an archaeologist:

"Our past is not reconstructed by archaeologists and historians, but rather constructed. Archaeological facts cannot speak for themselves. Rather, the material remains are marshalled, compared and manipulated by scholars who are active participants operating within their own social contexts to support mutually inclusive and exclusive hypotheses of past behavioral patterns. The archaeological record is malleable, although we can accept that a cattle bone is 25 mm, that a stone tool is made from a particular raw material and that rock art is concentrated in one area but not another. Thus empirical observations and measurements constrain and frame the viable hypotheses which may be adequately derived from the data sets, although questions must always be asked as to why certain criteria (observations

and measurements) were applied in order to prevent a degree of bias as far as possible."

-- <http://www.antiquityofman.com/index.html>

[\[return to text\]](#)

Note 3 --

*"The current inventory of the moons (satellites) of the giant planet is as follows (information extracted from Jewitt, Sheppard, and Kleyna, "The Strangest Satellites in the Solar System," **Scientific American**, August 2006, pp. 41-47):"*

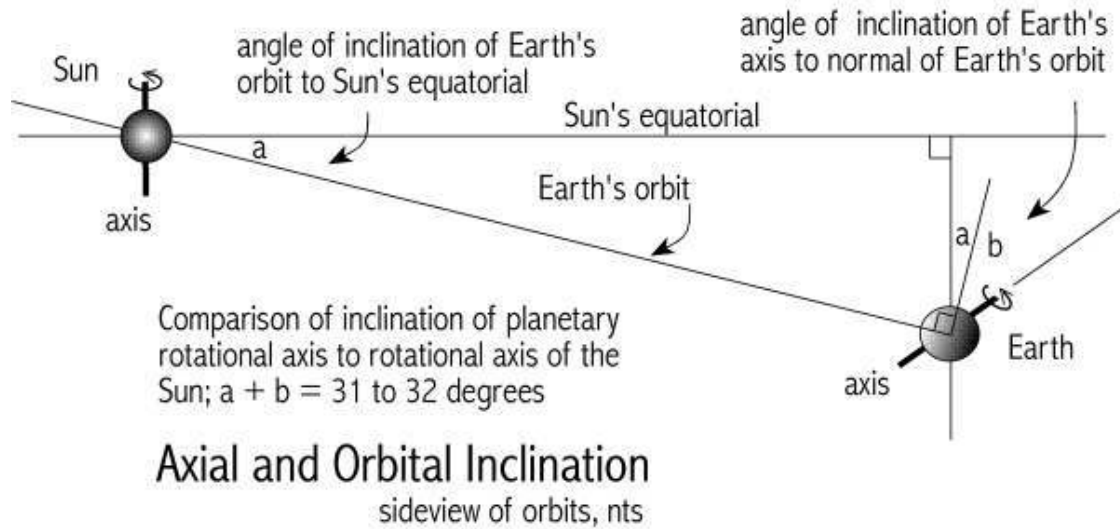
- Jupiter: 8 regular moons; 55 irregular.
- Saturn: 21 regular; 26 irregular
- Uranus: 18 regular; 9 irregular
- Neptune: 6 regular; 7 irregular
- Pluto: 1 regular; 2 irregular

-- http://rst.gsfc.nasa.gov/Sect19/Sect19_14.html#19-52

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Note 4 --

The diagram below compares the spin axis of the Earth with the spin axis of the Sun. The diagram would represent the mid-winter position along the orbit, when the plane defined by the spin axis of Earth and the radius of the orbit is perpendicular to the plane of the orbit.



[Image: Earth and Sun axial and orbital inclination.
Illustration by J. Cook.]

By adding the inclination of the orbit to the equatorial of the Sun, 7 degrees, to the inclination of the Earth's spin axis to the orbit, 23.5 degrees (known as its obliquity), the amount that the Earth's spin axis differs from the spin axis of the Sun is found to be 30.5 degrees.

Of course the condition of having the winter solstice at the "lowest" part of the orbit with respect to the Sun's equatorial (as shown above) does not happen in actuality. But since the orientation of a planet's spin axis in space does not change with travel along its orbit, the calculation is valid even though the diagram represents the equivalent of a thought experiment.

[\[return to text\]](#)

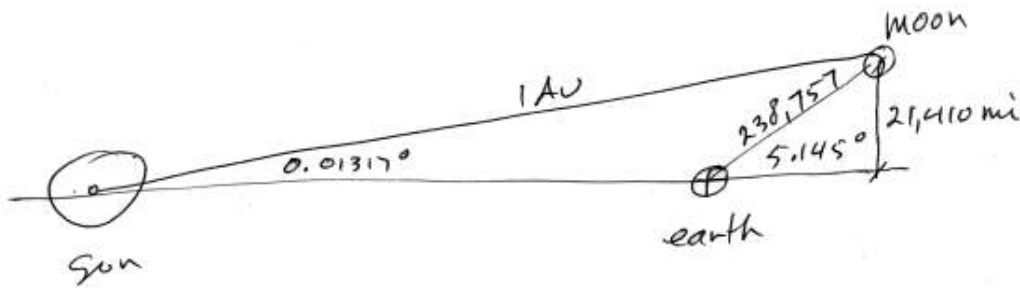
Note 5 --

The Moon just does not fit. The tabular data would be as follows:

object	inclination of orbit to ecliptic [degrees] (A)	inclination of orbit to Sun's equator [degrees] (B)	inclination of the axis to orbit [degrees] (C)	inclination of of spin axis to Sun's axis [degrees] (D)
Moon	0.013 *	6.9	6.7 **	13.6

* 5.14 w/r Earth; 0.013 w/r Sun
 ** 6.7 w/r the Sun

The geometry for the Moon assumes that the spiral path around the Earth is also an orbit around the Sun. The distance the Moon travels above the Earth (and thus above the ecliptic) can be found from the radius of the Moon's orbit and the maximum angle made with the ecliptic as seen from Earth, $238,757 * \sin(5.145) = 21,410$ mi. The Moon falls below the Earth by the same distance six months later.



[Image: Orbit of the Moon with respect to the Sun; side view. Illustration by J. Cook.]

The orbit of the Moon is a disk differently inclined to the orbit of the Earth, and thus at an angle to the ecliptic. Measured from the Sun, the inclination of the Moon's orbit with respect to the ecliptic can be found as the arctangent, $\text{arctangent}(21,410 / \text{AU}) = 0.013$ degrees.

The obliquity of the Moon to its orbit around Earth is 6.7 degrees. This is the angle of the rotational axis of the Moon with respect to the equivalent orbit around the Sun.

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Note 6 --

Although the spin axes of Earth, Saturn, Mars, and Neptune all point to locations of the sky which are 31 degrees away from where the axis of the Sun points, it is curious that they are not bunched together. It is this last which would be expected if indeed it is difficult to change the spin of a planet and if all the

Saturnian planets came into the Solar System pointing initially to the same location among the stars.

Although today the locations where the axes of these planets point are different from each other, they are all about the same angular measure away from the axis of the Sun. This suggests that, if the axis of a planet is to swing to a new location, it would follow a path which describes a circle which has as its center the rotational axis of the Sun. The question remains, Why would this be so? The only significant physical element in the Solar System which could perhaps have the property of always pointing in the "up" direction of the Sun, might be an up-down magnetic field experienced at the location of the Sun's equatorial disk (which has not been detected).

Combined with a radial current flow at the level of the Sun's equatorial (for which the solar wind would qualify) this would provide a force moving the planets forward. This is the right-hand rule of electricity and magnetism ($\mathbf{F} = \mathbf{B} * \mathbf{I}$, where \mathbf{F} , \mathbf{B} , and \mathbf{I} are vectors). However, things are not likely to be that simple.

Additionally, there is the curious phenomenon of the precession of the Earth's axial inclination, which advances the Earth's axis in a circle, and is known as the precession of the equinoxes. The center of this circle, which has been confidently defined by astronomers, is the selfsame circle where half the planet axes are located, and which has as its center the rotational axis of the Sun.

However, the precession is caused by the Earth's Moon, the only satellite of any planet which, with every rotation, moves out of and back into the planet's plasmasphere. The disturbance is real (and has been observed since late antiquity), and has been noted to change in the past or drop to zero. But the disturbed axis of the Earth remains at an inclination which keeps it on the 30-degree radius circle about the rotational axis of the Sun.

The often-mentioned notion that the inclination of the spin axis of Earth and Mars are the same, is a fiction. The angles have a close numerical value, but, as can be seen from the diagram in the text, they point to entirely different location in the dome of the stars. Rather than the axial inclination of the two planets being nearly identical, in reality they differ by over 40 spherical degrees.

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Note 7 --

This assumes that there was some random distribution of the inclination of the orbits of the planets from a very early time. Saturn and Jupiter have enough rotational (spin) momentum to have remained undisturbed for a very long time, measuring into the millions of years. Since gravity is a spherical field, nothing would disturb the orbital inclination of a planet once a particular inclination is initiated, except the minor gravitational tugs by the large planets. The wild card in all this is that Saturn came to the Solar System with a large positive charge, unlike the solar planets. Saturn could attract other planets.

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Note 8 --

The Cassini space probe, launched by the Huygens space ship, has determined a methane, nitrogen, and carbon dioxide atmosphere for Titan in January 2005. Hardly poisonous, but not exactly benign.

Earth has very few "meteor craters" -- only a dozen have been identified. Venus, similarly, has few small craters.

The distance that the Earth is from the Sun will make the overall climate warmer or colder, but the climate is not likely to be as extreme as it is claimed by astronomers. Gross climate estimates are based on solar radiation, and not on the effects of cloud cover and atmospheric water vapor.

On the other hand, in its very early history the Earth was apparently encased in ice. Some biological theorists have suggested this as an advantageous condition for the development of life-forms.

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Note 9 --

Magnetic fields are without doubt the most mysterious aspect of the planets. Nothing -- spin, size, density, or location -- seems to correlate with the magnetic field of a planet. Mercury, thought to have a metallic core, has only a very weak magnetic field. Venus should have a magnetic field since it is the same size as the Earth, but it does not. Yet Venus has a gigantic coma and plasma tail, usually indicated for a planet with a magnetic field. Mars should have a magnetic field since it is larger than Mercury, but has none. Jupiter's magnetic pole is upside down and ten times stronger than the magnetic field of any other planet. Uranus should have a magnetic field closely aligned with its axis of rotation, as other

planets do, but the axis of its magnetic field is at right angles to the axis of planetary rotation instead.

The Earth's ionosphere is actually a separate element, consisting of a shell closer to Earth, part of the much larger magnetosphere. I have here also neglected the toroidal Van Allen belts which encircle the Earth above the equator.

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Note 10 --

Bacteria reproduce by simply dividing into two organisms, but will exchange their chromosomal material at times. They will also release their chromosomal material to the environment, encased in a shell. These packets might be the source for viruses, whose genesis is completely unknown still.

"Bacteria trade genes more frantically than a pit full of traders on the floor of the Chicago Mercantile Exchange."

-- Lynn Margulis and Dorion Sagan, *What Is Life?* (1995)

Most bacteria reproduce very frequently. An exception is the methane-producing bacteria deep within oceanic muds near coastal regions, which are thought to reproduce only every thousand to ten thousand years.

See also Toby White's essays on early biology at [\[http://www.palaeos.com\]](http://www.palaeos.com), and especially Boyce Rensberger, *Life itself: Exploring the realm of the living cell* (1996)

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Note 11 --

The outstanding parameter of life is that it reacts to the environment. This is true for single cells as well as complex organisms. Classical evolution theory would hold that this is the inadvertent outcome of repeated extinctions which "select for" those organisms which have the ability to adapt to the environment.

Or so we think. In addition to the possibility that Saturn was responsible for "causing" speciation, the possibility exists that Saturn "brought" life. This is an element of panspermia, although without the notion that "comets bring life," thought to be elements of DNA in dried up bacterial or viral forms. There are no

comets, only asteroids. All the asteroids are local to the Solar System. Only Saturn would repeatedly come from outside of the Solar System. Saturn would also spend an estimated thousand years traveling through the asteroid belt (in both directions). I consider the asteroids as consisting of the broken remnants of earlier planets, which may therefore have supported life.

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Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Chapter 7: Ice Ages and Humans.

\$Revision: 42.5 \$ (ice.php)

Contents of this chapter: [\[Recent Glaciations\]](#) [\[Ice Ages and Humans\]](#) [\[Homo erectus\]](#) [\[Acheulean Handaxe\]](#) [\[Homo sapiens\]](#) [\[Endnotes\]](#)

Recent Glaciations

As I have noted, repeated extinctions mark all biological life on Earth at least since the Cambrian, 560 million years ago (mya). The interval between major extinctions has been estimated to be on the order of 26 to 27 million years. The only two glaciations the Earth has experienced since the Permian (200 mya) also seem to fit the pattern of 26 or 27 million year intervals. These are the Antarctic glacier of 30 mya (some have this as 40 million) and the most recent northern glaciation which started at 3 mya (dated to 2.7 mya).

Based on the likelihood that plasma contacts with Saturn were responsible for the glaciation, it looks as if Saturn arrived again in the vicinity of the inner planets of the Solar System about 3 mya, when the cycles of northern glaciation start. But this time the evidence indicates that Saturn not only returned, but stayed. After some 20 previous entries into the Solar System since the Cambrian, Saturn probably met up with Jupiter, and was forced into a much shorter orbital period -- certainly much shorter than the previous 27 million year period. The electric force between Jupiter and Saturn would have been attractive rather than repulsive -- enough so that Saturn was yanked into a much smaller orbit. [\[note 1\]](#)

The indication that Saturn may have repeatedly returned to travel among the inner planets is the record of a series of intermittent glaciations, followed with sporadic speciation. Included with the new species is the first set of six hominids (after 3 million years ago), followed at a later date with three more. All of these except the very last one, which is us, have become extinct.

The intermittent glaciations of the last three million years would suggest that these plasma contacts were made in passing -- as Saturn passed by -- rather than

in a configuration where Saturn would be close to Earth and deliver a stream of plasma over an extended period of time. With 80 percent of Earth covered by oceans, it is also likely that many strikes were never recorded, although there are land strikes (always identified as "meteor impacts") of uncertain ages.

One much earlier plasma strike to land, which has been dated with some certainty, is the absolutely gigantic circular Chicxulub "cometary" depression in the Yucatan, made 65 mya and 110 miles (177 km) in diameter, resulting in the (eventual) demise of the dinosaurs. But even land strikes of plasma in arc mode, if made at various intervals in the past in multiples of 27 million years, are unlikely to leave much of a datable record today. [\[note 2\]](#)

It is thus unusual that there were plasma strikes which were close enough to land areas and of an extended duration to leave a record as land glaciers. The start of the last two strikes (of 30 mya and 3 mya) were perhaps qualitatively different from contacts in the more remote past. What was (may have been) different is that the last two series of plasma contacts (30 mya and 3 mya) extended over a long period of time and contacted the Earth from above or below or both (rather than laterally), concentrating at the magnetic poles. The past strikes, like the one that formed the Chicxulub crater (plus 5 additional "craters"), instead may have been gigantic single bolts of interplanetary lightning -- a plasmoid lightning bolt -- not a constant streaming of plasma. [\[note 3\]](#)

Again, however, glaciations, although they may indicate Saturn's visits, are not a reliable index. Glaciers, which end up marking up the landscape with their movements, require a continuous fall of snow over an extended period of time. Thus, a brief plasma contact, or a plasma contact in dark mode which might disperse upon reaching the Earth's ionosphere, would leave no visible record on the Earth's surface.

The plasma stream has to be at least in glow mode, and has to last a long time in order to boil off large quantities of ocean waters. In glow mode the plasma stream would attempt to follow the curvature of the Earth's magnetic field and contact the Earth's surface at the magnetic poles (both the north and the south). At a magnetic pole the plasma stream would increase in density to become visible in arc mode. The arc would vaporize ocean water, raise stupendous clouds, and drop snow in an area maybe a thousand miles (1600 km) in diameter. In northern Europe there are medieval recollections (dating to AD 800) of the hole bored in the North Atlantic ocean by an arc, which had disappeared 3500 years earlier.

But, still, we would have no glaciation record if the magnetic poles were located in oceans far away from land. That may have happened repeatedly in the past. Anytime in the past when the magnetic pole of Earth was located in the middle latitudes of the Pacific ocean or Atlantic ocean there would have been no glaciation at all. [\[note 4\]](#)

... the geological record

There are three sets of data which bear on glaciation and thus provide secondary data for plasma contacts. The first is the geological record. This consists of the scars and sediment left behind at each advance and retreat of the edges of land glaciers. This is the most reliable record of glaciation. The geological records include those of Northern Europe, Canada and the Northern USA. From these data four recent major land glaciations have been identified, starting at 2.7 mya in Europe, and followed at intervals by the Illinois and Wisconsin glaciations of Canada and the USA. The glaciers have different names in Europe and America. [\[note 5\]](#)

However, the usefulness of the geological record is limited. The glaciations repeatedly built up and retreated and there are long periods during which nothing seems to have happened. Also, a study of where the edges of the glaciers appeared (and retreated) tells nothing of the central areas, and in fact it is still not even agreed if there were three or four glaciers (or five) or how they overlapped. [\[note 6\]](#)

... the Greenland ice cores

Another set of data which bears on glaciation is provided by the Greenland ice cores, from holes bored 9000 feet into Greenland's nearly two-mile-thick (3-km-thick) glacier. These provide a record of temperatures of the fallen snow in the past (gauged from the chemical makeup of the ice), but not over nearly as long a period as, for example, the data from Oceanic Oxygen Isotope cores (see below). The ice cores reach bedrock after 120,000 layers -- assumed to represent 120,000 years.

In fact, the date of 120,000 years ago, when the bottom of the glacier is reached, corresponds to an interglacial warming period, the Eemian, dated from 130,000 to 120,000 years ago, and corresponding to stage 5e in the Oceanic Oxygen Isotope Series (see below). Greenland was apparently clear of glaciers at that time. Antarctic ice cores also reach bedrock in as many layers.

However, there is something wrong here. The interpretation of the data of the ice cores is based on two questionable assumptions. The first assumption is that the glaciation was continuous over long spans of time. But if we accept the idea that intersections with the orbit of Saturn were the cause of the temperature swings and the less frequent land glaciation, we must conclude that the actual periods of glaciation were intermittent and possibly very short. It is only the snowfall in the mountains of Greenland that is continuous. [\[note 7\]](#)

The second assumption is that glaciation is associated with the North Pole. Yet the region of Northern Asia, which, like Greenland, lies within the Arctic Circle, was never glaciated. The glacier layers of Greenland were assumed to represent a year-by-year record of deposition which would vary little from one location to another. Since the center of glaciation moved over time, even over short periods of time (as the north magnetic pole moves today), we could expect the deposition layers of snow and ice in different locations of Greenland to be different. This has proven to be so; the discrepancy between ice cores bored at different locations has been noted and a concept of discontinuity is being woven into the current analysis by the researchers.

The last boring brought up organic material -- in defiance of the fact that a 120,000-year-old glacier would have obliterated all organic forms and would have scoured the surface clean (as also noted by the researchers). Stuck to the bottom of the drill bit was what looked like a pine needle.

It should also be noted that despite much bragging to the contrary, little data has actually been obtained from the ice cores which correlates to other worldwide events, like volcanic eruptions. Only a single late worldwide event has been correlated, and not with any certainty. [\[note 8\]](#)

The "fine detail" of the Greenland cores record shows swings in temperature as short as 70 years. Some geological records for the same period show even shorter intervals between glacial build-up and retreats -- as short as 20 years. [\[note 9\]](#)

... Oceanic Oxygen Isotopes

A third set of data bearing on glaciation are the Oceanic Oxygen Isotope cores (from the sludge of sunken skeletons of surface foraminifera) which is understood as an index of ocean temperatures near the surface and thus should indicate the existence of glaciation, or at least glacial melting. The data is used

as an index of ocean volume compared to the amount of water locked up as land glaciers.

Oceanic oxygen isotope analysis gives results which extend back 65 million years, and is thought to represent a measure of worldwide climatic conditions under assumed stable conditions. The record during the last few million years is extremely variable. The cooler periods during the last three million years have an interval of about 100,000 years (and intermediate intervals at 50,000 years). The standard explanation is that the cold periods correspond to periods of glacial buildup. I will suggest other causes in the second half of this chapter, below.

During the last 200,000 years there are even shorter intervals (20,000 years) between cooler periods. Then at about 60,000 years ago, the variation becomes almost impossibly chaotic, so that in the most recent period we encounter temperature swings at intervals as short as 3,000 years.

The data from oceanic Oxygen isotopes are problematic in that there is likely to be a time lag between glacial buildup and changes in the mix of Oxygen isotopes. Melt waters after a glaciation ends may give the indication of "cold," even though there is no current glaciation. The melts may have lasted thousands of years. The oceans may not have responded as we would expect them to react under current conditions. For example, based on lake-bottom pollen studies, paleontologists have noted the continuity of plant species indicating warm climatic conditions which carry through periods marked as cold by the oceanic Oxygen isotope studies.

What can be said of all three of these records (geology, ice cores, and oceanic oxygen) is that they represent a lengthy period of glaciations of indeterminate lengths and a wildly chaotic climate -- which may represent the existence of glaciers, or which may have yet other or additional causes. [\[note 10\]](#)

A solution should be sought in the possibility of intermittent plasma contacts with Saturn at the magnetic poles, which would build glaciers on adjacent land areas, which will in turn melt, or at least partially melt (glaciers melt from the bottom), before another contact is made at a different location, because the magnetic pole has had a thousand years to drift to a new location.

Although elaborate theories have been brought forward to account for the temperature swings, it would be difficult to estimate global conditions if they were due to an unimaginable billion ampere arc boiling away an ocean at its

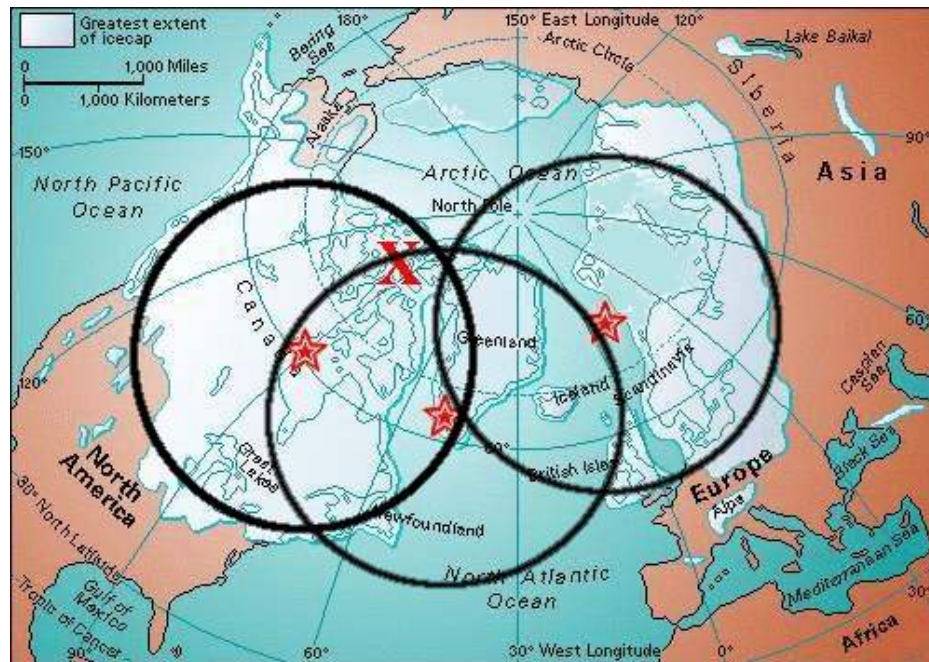
contact point, resulting in a continuous snowfall over a region a thousand miles in diameter. And, as I note elsewhere, I seriously think "warm" climatic periods should be associated with glaciation, and "cold" with the intermediate periods -- rather the reverse of what is held today.

To this should be added the possibility that the plasma contacts could have lasted for years or even hundreds of years and that the contacts could radically change the climate of Earth (for the better or worse) in ways which are totally beyond our comprehension today because we have never experienced anything like it in our stable modern world.

In fact, Book 11 of the Maya *Chilam Balam* recounts the appearances of sacred stones in the skies, at enormous intervals of time -- stones which are trying to bring God into existence as the Christian God the Father. See for this the chapter "The Olmec Record of the Past." As an Indo-European speaker I at first understood the readings of Book 11 of the *Chilam Balam* to speak of arrivals of these stones (it obviously is Saturn and its allied planets), but in the grammar of Mesoamerica (and all the American languages) the text concerns the completion of a period of time, and thus speaks of the leave-taking of Saturn rather than its arrival. This suggests that there might have been long periods when Earth was in plasma contact with Saturn. I have no idea how these periods were terminated.

It is possible to suggest that the proximity of the huge planet Jupiter to Saturn might frequently displace Earth in its orbit so that the climatic effect of the Sun would vary for long periods. Based on scant information from some creation myths, and currently on physical evidence just now developing (after 2009), there exists a clear indication that in 10,900 BC the Earth's plasmasphere made contact with Saturn's plasmasphere. This resulted in an intense electric field shock, causing the "darkness before creation" which seems to have lifted only by about 9,000 BC, when the climate of Earth suddenly improved.

After 12,000 BC all of Northern Europe and Canada was cleared of ice in a matter of a few hundred years. The cessation of glaciation in Greenland was not an index of this, for the Greenland ice cores continue to count layers of snowfall to the present day. Greenland is, after all, a land of high mountains.



[Image: Extent of all glaciation over the last three million years superimposed on each other. On the map above, not all of the indicated area was glaciated at the same time. The stars are three estimated centerpoints of glaciation over the last 60,000 years. "X" is the current location of the north magnetic pole. Illustration by J. Cook.]

... the last glaciation

The map above would suggest that the magnetic pole moved clockwise across Greenland and Canada. Yet it was the center point off the coast of Norway which was remembered as late as AD 800 as the "maalstroom" (Maelstrom in Norse), a whirlpool.

The accepted last **interglacial** period in Europe, but not elsewhere (or worldwide), stretched from 60,000 to 25,000 years ago. It is a period which saw both the Neanderthals and Cro-Magnon populations in Europe. The Cro-Magnon people are us. The last glaciation followed between 25,000 to 12,000 years ago. The Neanderthals had disappeared by this time, although "pockets" of Neanderthals persist late in Spain and the Levant, perhaps as late as 8000 BC.

As an example, the following is the record of glaciation and interglacials for Central England for the last half million years. Some of the periods correspond in name from one country to the next. The "Windermere" interglacial, for example, does, but many of the names and date estimates are local. For

example, the "Anglian" glaciation in England, shown below, will not match glaciation names (or dates) for Switzerland. Interglacials -- periods of warmer climate -- are shown in parenthesis below.

Glaciation and Interglacials for England for the Last Half Million Years		
glaciation or (interglacials)	period Years Before Present	Notes on hominids
Anglian	480,000 -	
-- (Cromerian)	(480,000 - 426,000)	H.heidelbergensis
-- (Hoxnian)	(425,000 - 375,000)	H.erectus (?)
Wolstonian	330,000 - 135,000	tools
-- (Ipswichian)	(135,000 - 35,000)	tools
Devensian	70,000 - 10,000	H.neanderthalensis
-- maximum at...	25,000 and 10,000	English channel dry
-- (Chelford)	(65,000 - 59,000)	H.n tools
-- (Upton Warren)	(42,000 - 38,000)	H.sapiens in Europe
	(25,000 - 8,000)	large mammals disappear
-- cold	27,650	last H.n in Europe
-- ice retreat	14,500	in England
-- (Windermere)	(13,800 - 12,000)	tools
-- colder	12,500	
-- cold snap	10,900 - 9,000	Younger Dryas
-- glacier gone	10,000	
-- warming	9,000 and after	channel flooded
-- cooling	6,500 - 4,500	
	6,500 - after	farming established
From diverse sources		

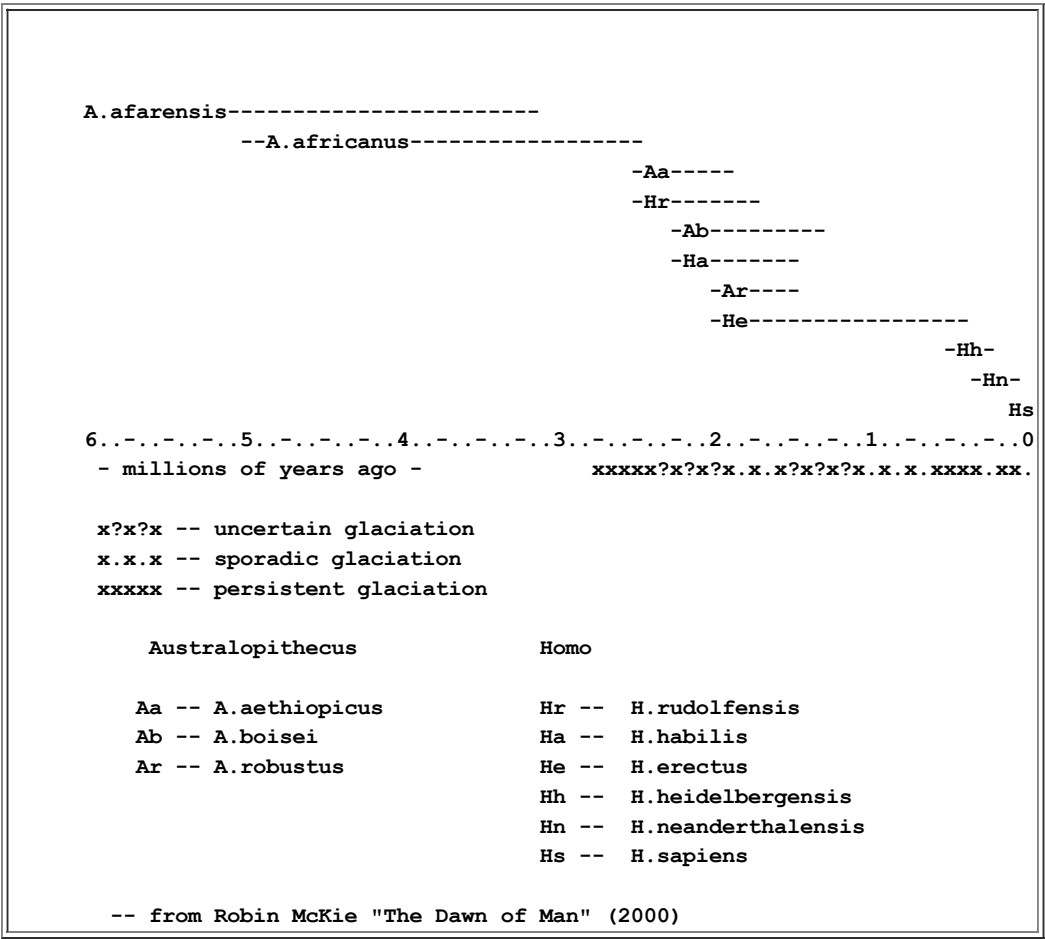
I have shown the above to give some scope to the variability of glaciation, as well as to indicate the presence of hominids only miles from the glacier. [\[note 11\]](#)

Ice Ages and Humans

What the data of the oceanic Oxygen isotopes record and the ice cores reveal is a long series of interactions with Saturn. Some of the interactions are of short duration, all are sporadically weaker or stronger, with long periods of thousands of years where nothing happened. The only certainty is that the hominids of the northern hemisphere were repeatedly (in geological time spans) and unremittingly exposed to bursts of plasma. [\[note 12\]](#)

There ought to be a coincidence between the "evolving" hominids (or speciation, as I have pointed out in the previous chapter) and the plasma strikes of the last three million years, or, as our only evidence of the plasma strikes, the glaciations. The following chart compares hominids and estimates of glaciation. The table is based on an illustrator's interpretation, done for a popular book, with the various species fading in and out as bar graphs. I'm sure the creation of the chart was supervised and critiqued by "experts" (Meave Leaky, for one) and is probably as close to actuality as we can expect given the almost total lack of fossils and the imprecision of dating.

What struck me, perhaps from the perspective of the bias of my thesis, was that the data of first appearances and extinctions of hominids appear in clumps, so that the appearance and demise of various species or sub-species happen at roughly the same time period (although often with a lag of 50,000 to 200,000 years).



I have shown both the **Australopithecus** and **Homo** hominid species above. **Australopithecus** (a hominid species originating 6 mya or more) has no issue after 1.2 mya. I have added the "glaciation record" as an utter simplification. I should note that the "persistent glaciation" is based on temperature records, and may not correctly represent glaciation.

Most interesting is how we are represented by only two species for a span of over 3 million years. However, as the northern glaciation of Earth starts up about 2.7 mya, **Australopithecus africanus** disappears, to be replaced in a short time (geological short time) by six new species of **Australopithecus** and **Homo** hominids. [\[note 13\]](#)

For nearly 30 to 60 million years primates had existed throughout the world. They were very common in the northern hemisphere, including North America, 35 mya. But the species disappear from the northern regions everywhere by 30 mya and are reduced to the tropics. It looked like the primates outside of the tropics of Africa and Asia did not survive the changes at the end of the Eocene, 30 mya. At that time we see glaciation in Antarctica, extinctions, and a drop in global temperatures.

"Following the terminal Eocene extinction which took out the Dinocerata, Archeoceti, and most of the Titanotheres and Creodonts, new kinds of mammals evolved and expanded in an evolutionary radiation of many new types. These included the prehistoric ancestors of dogs, cats, rhinoceroses, and horses."

-- [\[http://www.palaeos.com\]](http://www.palaeos.com)

Nothing much happens with the primates anywhere following the extinctions of 30 mya, except for the bipedalism of **Australopithecus** in Africa. That appears to have happened 6 or 5 mya. Bipedalism is important, yet paleontologists cannot figure out why this change occurred. It is a major change in the bone structure of the legs, hips, knees, and neck. The thinking initially was that bipedalism evolved to release the arms to make tools and carry food. But no tools have been found from this remote time. It would be more likely that the arms were used to carry babies, which could no longer travel on mom's hairy back. (But as usual, this confuses causes and effects.) Bipedal walking, however, is amazingly efficient compared to the knuckle walking of our predecessors. And, as the Central African jungles shrank, walking needed to be done to gather food. A better suggestion has been that the bipedalism is part of a well-

developed running ability. We don't sprint any better than other carnivores, but we can run forever.

Australopithecus thus appears adapted to a changing environment -- he is no longer confined to the jungles of the Congo, as his (and our) nearest relatives, the Chimpanzees, continue to be. He could expand his territory as environmental changes continue to occur in Africa after 5 or 4 mya.

About 2.7 mya the northern glaciation starts. Shortly thereafter (in geological time spans) we see a proliferation of **Australopithecus** and the first **Homo** species. **H.rudolfensis** and **A.aethiopicus** appear at about 2.5 mya, while **A.africanus** disappears. This is followed at 2.25 mya by the appearance of **A.boisei** and **H.habilis**.

Diversification and disappearances continued another half million years with the appearance of **A.robustus** and **H.erectus** (2 mya), and then the almost simultaneous disappearance of five out of the six species of **Australopithecus** and **Homo** at 1.75 to 1.5 mya. Only **H.erectus** survives.

If these extinctions had happened in the more remote past it would have entered the biological record as another mass extinction. But because these changes happened so near our time, and especially since they involve our predecessors, the tendency is to think of it as "evolutionary changes," where some species are fit and some are not -- in Darwin's parlance, "due to natural selection."

But in fact we should be impressed by the fact that, after a period of nearly 30 million years during which no "evolution" occurs, we are suddenly confronted by the appearance of six species, all of whom, except one, disappear again after a "mere" million years. I would suspect a visit by Saturn as the speciation event, 2.7 mya, and a return visit about two million years later. That means that, for the first time in 500 million years, the orbit of Saturn had been reduced from 27 million years to a very short orbit of a million years or perhaps even much less.

Only a single species, **H.erectus**, carried through the long two-million-year period only to disappear in turn about 200,000 to 50,000 years ago. This is a long stretch where nothing happened, and it is thought to represent a long interglacial period or only sporadic glaciation. Only towards the end of the 2-million-year span, 500,000 years ago, do we see the appearance of other **Homo** species -- **H.heidelbergensis**, **H.neanderthalensis**, and later **H.sapiens**.

Glaciation had definitely started up again in earnest by then (about 600,000 years ago).

Homo Erectus

"The suite of discovery, innovation, and increasing intelligence that gave some australopithecine a better ability to hunt, prepare food, and so on, happened perhaps around 2.5 Ma [mya] at a brain size that was typically australopithecine. That suite changed the diet toward meat, higher protein, less chewing, etc., and at some point the evolving jaw reached a morphology [more] typically [of] Homo. The larger brain [of Erectus] came later, but it perhaps came more easily because the jaw musculature was smaller."

-- Richard Cowen, Geology Department at UC Davis.

In the million years after **H.erectus** became the sole surviving hominid, he spread everywhere -- into all of Africa, Asia, Europe (apparently), and possibly into the Americas (although there is only slim evidence of this). **H.erectus** is our only connection to the remote past, the single link to the earlier diversity. [\[note 14\]](#)

Erectus was most likely naked, and had a very thick skull, like the later Neanderthals. Unlike the later Neanderthals, he did not bury his dead. He ate fruit, vegetables, and road kill; but also hunted down antelopes, used fire to roast meat and burn down prairies, and made tools ... well, he made *one* tool.

The Acheulean Handaxe

In the following, Noel Boaz, a paleontologist, reacts appropriately to this long lineage in detailing a single outstanding fact. This is from his book *Eco Homo* (1997). He is writing about **H.erectus**, who ranged over East Africa and Asia (into China) from 1,800,000 to maybe 200,000 years ago (50,000 ya in Southeast Asia) -- a very long time, more than one and a half million years. **H.erectus** had a brain case (after a half million years) only a little smaller than ours, and likely was a lot smarter than dogs, apes, or chimps. But did he "think?" Noel Boaz writes:

*"The available archaeological data on Homo erectus reveals that one type of tool was used for about a million years -- **one** type of stone tool, for a*

million years, all over Africa wherever *Homo erectus* is found after 1.4 mya. For some reason it is not associated with Asian *Homo erectus*."

Actually they are also found in Europe and into the western part of Asia.

"This stone tool is the Acheulean hand axe."

*"It is not an easy tool to make and modern *Homo sapiens* graduate students are not able to fashion a very good one even after an entire academic term of practical experience."*

*"The implication is that *Homo erectus* would have expended a tremendous amount of time and energy -- years -- laboriously learning how to make hand axes. The technique must have been passed on by rote repetition. Hand axes stayed the same for untold generations."*

*"This method of cultural transmission is entirely foreign to us. Nothing that we *Homo sapiens* learn and internalize stays the same. We have to change it, improve it, make it look better, modify it to fit our specific needs -- be it a chair, an art form, or our own language. But this never occurred to *Homo erectus*, not in a million years."*

-- Noel Boaz, *Eco Homo* (1997)

Erectus made additional tools of stone, but these are at best described as crude, consisting mostly of split pebbles. The Acheulean hand axe is so unusual, and so clearly a finished product of a very specific design, that it almost looks like an import from the future. It is flat, carefully chipped (and sharp) along all edges, almond shaped with the pointed end always displaced to one side of the central axis, and consistently modeled to a shape which does not vary over an enormous span of time and geography. Since it apparently did not enter Central or Eastern Asia or the Americas, we would have to assume a cultural transmission originating in Africa.



[Image: Acheulean hand axe of classical design. Neanderthals in Europe, after about 300,000 BC, reduce the design to look more like an oversized triangular arrowhead with a rounded bottom. After William Calvin, adapted from C.O. Waterhouse.]

What Boaz fails to note is that the Acheulean hand axe is a very hefty device, a foot high, and weighing over four pounds. It is useless as a tool for working wood, preparing hides, cutting meat, or pulverizing roots. It looks more like an assault weapon for taking down hooved animals by splitting open their skulls.

William H. Calvin, in "The Ascent of Mind, Ice Age Climates and the Evolution of Intelligence" (Internet, 1990), suggests that the Acheulean hand axe is indeed an assault weapon. When tossed *en masse* by a group of Erectus hominids at a closely packed herd of antelopes at a watering hole, the axes would cause deep cuts in the skin of the animals, because the aerodynamics of the axes cause them to always exit from the fall with its edge down. The eccentric point of the axe would rotate and cause a rip in the skin.

Calvin writes, about experiments performed by Eileen O'Brien:

"The replica indeed spun well; that flattened shape and bilateral symmetry are very useful for setting a spin. O'Brien and her two athletic friends discovered a totally unsuspected aerodynamic property of their hand-axe replica: in mid-flight, it would turn on edge and land that way. Indeed, the hand axe would usually slice into the ground and bury its point."

"... the tendency to land edge-on [and point down] matches up with a previously puzzling aspect of the archaeology: hand axes are often found in dried-up ponds and lakes and creeks, sometimes standing on edge!"

The natural reflex of an antelope, writes Calvin, to an impact by a tossed boulder, is to set out its legs on the side opposite the impact. But the reflex to a tear in the skin of its back is to flex its knees, as when the back catches on overhanging branches as in walking through brush. In the next moment the herd, stampeding in flight from the attack, would have trampled and killed the unbalanced animals.

This reasoning, along with other evidence, suggests group action not unlike the group hunting tactics of chimpanzees today. It requires only the coordination of underhand tosses of the group. But to lob this device at individual animals would require quite a bit more hand-eye coordination. Calvin suggests that this may be one of the evolutionary circumstances which quadrupled the brain of Erectus over the course of two million years.

Considering the failure of Erectus to evolve the design of the Acheulean hand axe, I wonder how they conceived of the design and its use in the first place. The Acheulean hand axe includes three required design elements: It has to be flat, it has to be sharpened on all edges, and it has to have an almond shape. This last item, the pointed shape at one end, is a fine design detail, yet so logically useful (for it is the descending point which rips the skin), that it is amazing it ever came into being.

There is, however, a fourth design element which seems to have no useful function. This is the offset of the pointed end from the central axis of the axe. Yet it is copied from one hand axe to the next on three continents over the course of a million years. Every hand axe is lopsided in design, and they all copy from each other.

Every Acheulean hand axe looks like every other Acheulean hand axe, although there is some variation in overall size. Because of the consistent shape, it has been suggested by some people (I cannot source) that these were religious objects. I will try to answer this question in a later chapter.

In the African Great Rift Valley, at a site known as Olorgesaille, in Kenya, there is a ten-acre site littered with thousands of Acheulean hand axes. The materials were sorted into groups -- raw materials, finished axes, and blunted axes (the last apparently for resharpening) -- suggesting a factory. Raw materials were

carted from 6 miles (10 km) away. The factory remained in use for *one million years*. [\[note 15\]](#)

The only possible users of the site (there are no bones found) would have been *Homo erectus*. We can ask the question, "Are these humans or smart animals?" They certainly are not *us*, and there is no indication that we, *Homo sapiens*, *slowly evolved* from these hominids. When we do finally appear, it is complete and with astounding suddenness -- and with hundreds of specific stone tools, spear throwers, detachable harpoons, serrated knives, thread cutters, basketry, weaving, beads, and cosmetics.

Homo sapiens

We are preceded, however, on the European continent, by *Homo neanderthalensis*. In addition to the Acheulean hand axes, both *Erectus* and the later Neanderthals developed the method of making cutting blades by knapping pre-shaped flint nodules. This was a development which may have derived from the Acheulean hand axe.

For 300,000 years these cutting blades (generally known as Mousterian tools) are also consistently the same shape. Clive Gamble notes that it was the process of knapping which was culturally carried forward. The Neanderthal mind was on the technique, not on the end product. Only this explains how the blades remain the same for such an unimaginably long time, and how no variations were ever developed. Yet the Neanderthals were apparently effective predators and scavengers.

But for over 100,000 years (and perhaps 300,000 years) the Neanderthals never once dug a trench to sleep in, set up tent poles, placed rocks in a circle for a fire, pierced shells or pretty stones, carved a representative image, or buried their dead. We, **H.sapiens**, did. And we made art as well. [\[note 16\]](#)

Only during the last 20,000 years, when contact is made with the Cro-Magnon **H.sapiens**, who had invaded Europe from the east, does the repertoire of the Neanderthals start to include other cutting tools, as well as ornaments. There are even some Neanderthal burials. Not all groups interchanged ideas and materials with the Cro-Magnon. Some remained separate for upwards of 10,000 years. Meanwhile, Cro-Magnons were painting cave walls.

About the explosive material culture, which is seen to arrive in Eastern and Western Europe at the beginning of what (as a result) is defined as the Upper Paleolithic (45,000 to 35,000 ya), James Shreeve, in *The Neanderthal Enigma* (1995), writes:

"New types of stone tools proliferate, taking on regional style where before there was global monotony. In Africa as well as Europe, elegant implements carved from bone, antler, and ivory appear in abundance. Change replaces stasis."

"In France new industries rush in and disappear again like Paris fashions -- the Aurignacian, the Gravettian, the Solutrean, the Magdalenian -- each with technological styles and innovations all but unknown in the period preceding it. From Spain to the Urals, site lists begin to read like proto-Sears catalogs: sewing needles, barbed projectile points, fish hooks, rope, meat-drying racks, stone lamps, temperature-controlled hearths, complex dwelling structures."

The Neanderthals had appeared in Europe a few hundred thousand years ago, preceded by 100,000 years by **H.heidelbergensis**. In Europe, also, **H.erectus** disappears after the Neanderthals show up. **H.erectus** remains throughout Central Africa and Southeast Asia to 50,000 years ago and maybe later. Later finds of skulls in Asia tend to show a combination of features of **H.erectus** and **H.sapiens**, suggesting to some paleontologists an "evolution" of **H.sapiens**, and to others the more obvious interbreeding.

By many estimates **H.erectus** is our progenitor because portions of mitochondrial DNA extracted from some **H.neanderthalensis** do not match ours. Before these determinations, **H.neanderthalensis** was our favored grandparent (which also presumed that **H.sapiens** was European). But there are problems with **H.erectus** also. In addition to the fact that **H.erectus** seemed to have had the brains of a gnat, the skull thickness does not match. Erectus and Neanderthals both have thick skulls, at one time suggested as a defense against club attacks by members of the same species; we definitely do not. Since the identities of various species shift with the identification of additional archaeological specimens, and as a result also their temporal and geographic distribution, there is no telling exactly where we (**H.sapiens**) came from.

By the time we are established as the single surviving species of hominid, our ancestors had passed through three bottlenecks. The first was the disappearance

of primates almost everywhere some 30 mya at the end of the Eocene. The second was the disappearance of all except one of the six species of hominids about 1.5 mya.

The third was the return of Saturn 120 thousand years ago. Three of the four species of hominids in existence at that time become extinct at about 100,000 to 50,000 years ago, although **H. erectus** may have disappeared earlier in Europe. We seem to have speciated at about this time. Perhaps we developed a certain immunity to radiation from the continued plasma strikes. Among paleontologists the typical thinking is that we rose to prominence by wiping out the competing Neanderthals (which mainly existed only in Europe). It is certainly possible, but it is as likely that we either outbred the Neanderthals or interbred. That might also be true for any groups of **H. erectus**, for certainly **H. erectus** traits show up among modern humans. We are very closely related species, and interbreeding would most likely have produced results.

Analysis of *our* mitochondrial DNA (mtDNA), taken from populations throughout the world, places our genesis at about 100,000 to 200,000 years ago - - by mathematical theories of spontaneous changes -- and in East Africa, popularly known as the "out of Africa" thesis. But as noted by R. A. Fonda, one among many,

"The putative common source of all human mtDNA is probably neither chronologically nor causally related to the origin of H.sapiens."

What Fonda is saying is, that the "out of Africa" thesis does not add up. The physical barriers are immense, and the mtDNA trail (the biological inheritance relationship between humans) points to derivations from diverse and long-separated **H. erectus** groups. Fonda suggests a genesis of **H. sapiens** in Eastern Asia as much more likely, followed by the subsequent interbreeding with Asiatic and African **H. erectus** populations. Since Asiatic **H. erectus** can be biologically traced to Africa, the data is easily misread or misinterpreted as concluding that all modern humans came originally from Africa. (The "out of Africa" hypothesis is also politically correct.)

The "moderns" (**H. sapiens.sapiens**) show up in Australia by 65,000 years ago (as Cro-Magnon types, today dated to 40,000 ya), in central Asia and the Levant by 50,000 years ago (currently estimated at 100,000 years ago), in South Africa by as long as 75,000 years ago, and in Europe by 40,000 years ago. We are likely

between glaciations during this time. By the time glaciation starts up again sporadically we are established nearly everywhere. [\[note 17\]](#)

If **H. erectus** was a traveler who could spread throughout all of Asia in a few hundred thousand years, **H. sapiens**, by comparison, races across the globe. After having been sighted in Southeastern Asia (Australia) 65,000 years ago, **H. sapiens** has spread to Southern Europe by 40,000 years ago, the edge of the Arctic Sea by 30,000 years ago, and to the Americas by 30,000 to 50,000 years ago. Estimates vary, but the coincidence of dates is remarkable. About the same time **H. neanderthalensis** and **H. erectus** disappear (**H. heidelbergensis** having disappeared earlier); we are everywhere. [\[note 18\]](#)

Fonda (quoted above) suggests Northeast Asia for the location of the speciation event. He also suggests interbreeding with **H. erectus** in Southeast Asia and Africa. He shows that the chromosomes of the population (of current humans) in these last two regions are further apart than any other two human groups. He suggests that this is due to the million-year separation of **H. erectus** in Southeast Asia from its ancestors in Africa. Physical characteristics of Erectus show up among **H. sapiens**, as, for example, in the thick skulls of Australian Aborigines.

If the magnetic pole, where a plasma arc from Saturn would touch down, rotated around Greenland to be relocated in Northeastern North America (Eastern Canada), as it seems to have done over the last 60,000 years, then it would have been likely for **H. sapiens** to have speciated (and perhaps in a number of varieties) in North America or Northeastern Asia. But North America was unpopulated 60,000 years ago. (However, Richard Firestone and William Topping, in papers discussed in a later chapter, suggest "*dates [for two North American archaeological sites] should be reset to about 55,000 years before the present and 45,000 years before the present.*")

How did we get there, and especially, how did we get to the Americas? It has been suggested that Native Americans could easily have walked from Alaska to Patagonia in 1000 years at a pace of a mile per day, with frequent rest stops. This assumes humans spread to Alaska from Asia via the Bering Straits. But that discounts the intermediate barriers of the glaciated mountains south of Alaska, the jungles of Central America, and the high Andes. And also, who would want to walk a mile a day for a thousand years?

There is another route, both to Alaska as well as the entire Pacific coast of the Americas, and that is by boat. However, that notion is something almost totally

unthinkable to archaeologists who contemplate today's woolly oceans and additionally hold our ancestors as inept. I'll get back to that in a following chapter, for it also involves the spread of languages.

The dates of the appearance of **H.sapiens.sapiens** suggest movement from East or Northeast Asia in the direction south and west into Western Asia, Europe, and Africa. The Americas may have been populated fairly early from East Asia, and Africa may have been populated (invaded) at nearly the same dates as Europe. Along with the early "archaic" **H.sapiens** in South Africa (at 100,000 and 75,000 years ago), the dates suggest travel by boat along the east and south coasts of Asia, the east coast of Africa, and the west coast of the Americas. There are also suggestions of travel to the Americas via Antarctica. [\[note 19\]](#)

Endnotes

Note 1 --

In a later chapter I will present data of the appearances of Saturn and its planets in the past 40,000 years, where records of the Maya *Chilam Balam* books can apparently be matched against a record of excess atmospheric Carbon-14 over the same period. I bring this up at this point only to assert that although the orbit of Saturn seems to have been reduced from 27,000,000 years to 4,000 or 5,000 years, it should not be thought that Saturn was on an orbital period on the order of an Earth year. Apparently this only happened sometime after 10,900 BC.

It should be recognized that the shortening of Saturn's period could only have happened if it is recognized that Saturn came into the solar system from outer space and carried a large positive charge far in excess to the charge on any of the solar system planets. Thus the solar system planets would all be negatively charged (less positive) with respect to Saturn.

The interaction between Saturn and Jupiter would have presented an attractive electric force. Meeting up with Jupiter would have pulled Saturn (if on an outer orbit) closer into the domain of the solar planets (to a shorter orbital period).

The extinction at the end of the Permian, which removed 99 percent of all species, and covered the tropics with glaciers, possibly had nothing to do with the entry of Saturn into the Solar System. If this was a nova event, it could have happened at any time in the 27 million year orbital period of Saturn, although it could be suggested that entry into the domain of the Sun might set the stage for

such an event. This goes also for the Cambrian, which, as a matter of fact, is preceded by an extinction event.

If the K-T boundary extinction (the Chicxulub crater) is correctly dated at 63 million years ago, then the Antarctic glaciation would date to **63 - 27 = 36 million years** ago. The northern glaciation would then start at **36 - 27 = 9 million years** ago. Both of these dates match the current range of estimates for both events.

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Note 2 --

The Chicxulub crater is the result of a lateral strike to the Earth (probably as a series of pulses). Saturn and Earth must have been at about the same elevation at the time of the strike. For Tom Van Flandern's comments on the Chicxulub crater, see endnotes in the previous chapter.

G. Keller of Princeton notes (in a paper I cannot locate) of recent geological and dating studies which suggest a 300,000-year interval between the creation of the Chicxulub Crater and the K/T boundary (at <http://geoweb.princeton.edu>).

It took the dinosaurs some 10 million years to die out, as estimated by Robert Bakker.

The Chicxulub strike fits the series of regular extinction events. The next extinctions would then be expected at 39 or 40 mya and at 13 or 11 mya and this actually matches the early date of 40 mya for Antarctic glaciation and recent (2007) reports of evidence that the most recent northern glaciations may have first started 11 or 9 mya. Starting dates for glaciation are not easy to determine. I have used 30 mya and 3 mya as the time since the Antarctic and northern glaciations.

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Note 3 --

A plasmoid is a disconnected "spurt" of plasma, a thunderbolt traveling as a discrete object. These have been observed experimentally. The disconnection of the arc from the source is due to a lowering of the driving potential after discharge. On release the extended arc tends to condense back upon itself (while traveling) to form a shortened "object" of a distinct shape -- a twisted body with balls and three tines at each end (actually the denser portions of a chalice-like

form with a tongue in the middle). The plasmoids are known from sculptural records in antiquity (as late as Roman times), especially in relation to Jupiter, and closely resemble the shapes of the experimental laboratory discharges. Depictions of the Egyptian name glyph for the predynastic pharaoh Narmer ("catfish-chisel"), dating to 3100 BC, is obviously a plasmoid, complete with a rope-twisted body (depicted in one case), a tripartite tail, and a snout with two whiskers. Models of plasmoids, as seen by humans in late antiquity, still exist in Tibet and Japan today. The European *Fleur-de-lis* is a remnant of this design, which is first depicted on coins in late antiquity.

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Note 4 --

The location of the magnetic pole at any specific time in the past can be triangulated from the direction in which low level magnetism of rocks point at the time the rocks cooled from a molten state (as for example, lava flows). If the rocks can be dated, then a record of the dates and locations of the magnetic pole can be derived.

The magnetic pole was located in the mid-Pacific in the remote past. Over an extended time period it moved north. There is also a record showing the magnetic pole traveling north in the mid-Atlantic. The large displacement of the magnetic pole from the geographical pole of a planet is not unusual.

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Note 5 --

The glaciers, in historical order, are known in Europe as the Günz, Mindel, Riss, and Würm. These correspond to the German names, Weichsel, Saale, Elster, and Weybourne, and the North American names, Nebraskan, Kansas, Illinoian, and Wisconsin. This nomenclature has largely been abandoned in favor of a dating based on the Oceanic Oxygen Isotope record.

The last glaciation, the Würm, started up 70,000 to 60,000 ya. Alpine glacier records suggest that the Würm consisted of four separate glaciation periods.

The Greenland ice core data of the last 120,000 years, which tends to exaggerate temperature fluctuations, suggests 6 long periods of cold (as long as 4000 years) and a greater number of short periods (lasting less than a thousand years). Temperature estimates (the coldest month of winter) from drill cores of a bog in Northern Italy mostly support this, but shows less rapid variation in terrestrial

temperatures. Charts are shown in endnotes further below.

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Note 6 --

There is evidence of very early glaciation (2 billion years ago), some hundreds of million years (900 to 650 mya) before the Cambrian, during the Ordovician (450 mya), and at the end of the Permian (250 mya). The Permian glaciation has been discussed.

The last glaciation of 3 mya may have started earlier than 2.7 mya. Mark Maslin and Jonathan Adams, in "The Onset of Northern Hemisphere Glaciation during the Tertiary and Quaternary" (*Environmental Sciences Division*, Oak Ridge National Laboratory, 1998), report:

"The earliest recorded glaciation in the Northern Hemisphere is between 10 and 6 Ma [mya] during the late Miocene. [references deleted] This involved a significant buildup of ice on Southern Greenland. However, the process did not gain much momentum until 3.5-3 Ma [mya], when the Greenland ice sheet expanded to include Northern Greenland."

There is currently still no consensus on the dates, ranges, or the number of glaciations over the last 3 million years. The earliest glaciers may have completely melted before the more recent glaciers appeared, dating roughly to after about 60,000 ya.

"The problem is that glaciers act like giant erasers. Each advance eradicates almost all traces of what's come before."

-- Wallace S. Broecker "Glaciers That Speak in Tongues and other tales of global warming" *Natural History* (2001)

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Note 7 --

My original take on the Greenland ice core data followed the critique of the followers of Velikovsky, but their objections cannot be sustained. See, for example, Charles Ginenthal "Ice Core Evidence" in *The Velikovskian* (1994). This article was heavily disputed by Sean Mewhinney, in "Minds in Ablation" (Internet, 1998). I cannot support either side of the arguments. It seems that

nothing has been proven either way.

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Note 8 --

That has improved somewhat since I first wrote that statement.

The more recent ice core temperature records are continuous through today, as determined, for example, by traces of lead, which represents Bronze Age smelting practices, the Industrial Revolution of the 18th century, and the use of leaded gasoline in the 20th century. With the introduction of unleaded gasolines the lead traces have dropped.

On the "signature" of the Thera explosion, Peter James, author of *Centuries of Darkness* (1991), writes [reparaphrased]:

"We have always remained sceptical of the case for a high date for Thera [the 16th century BC volcanic explosion], suspecting that the whole thing would eventually fall through. Unfortunately, our position recently led an otherwise favorable reviewer to remark that we took a 'sceptical view of the new scientific dating techniques' (Gerding 1997/8, 160), which is far from the truth. Proxy dating is not to be confused with the scientific techniques themselves."

"As it happens, we have now been vindicated. When further work was published on the Greenland ice-cores the real reason why the 1620s date looked so conspicuous became clear. Due to budgetary constraints, a thorough search measuring the sulphuric acid from each year had never been undertaken! When this was done, the 1620s BC 'event' ceased to be special. Similar peaks of sulphuric acid are now known to exist in the 16th, 15th, 14th and 13th centuries (Zielinski, et alii, 1994)! Any of these (for example those from the ice-core years 1594, 1454, 1327 and 1284) might represent the Thera eruption. Worse still, small particles of volcanic ejecta have now been found in one of the very ice-levels from Greenland."

"Analysis has shown that their chemical composition does not match that of Thera (Zielinski & Germani 1998a). Clearly miffed, Manning (1998) published a 'correction' to the geologists' conclusions, arguing that they had misinterpreted their data and that the particles came from Thera after all. The geologists' response (Zielinski & Germani 1998b) stated, in as

many words, that Manning was out of his depth and simply did not understand the methods involved."

-- www.centuries.co.uk

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Note 9 --

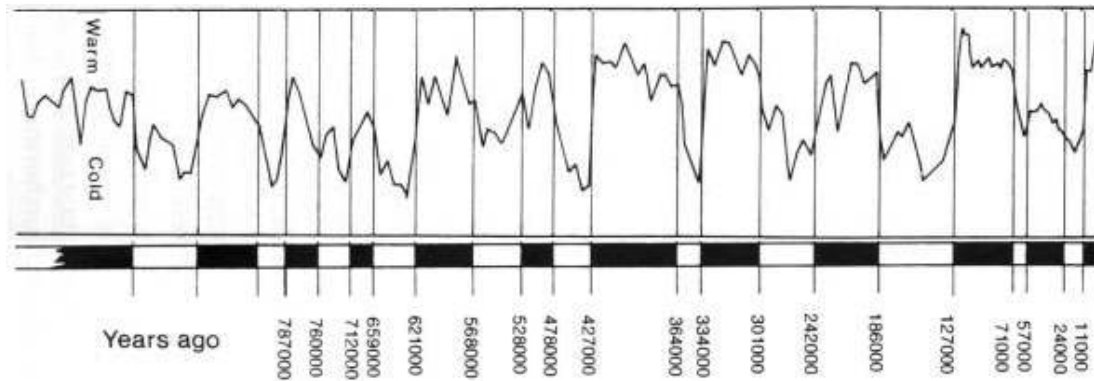
Over the last 250,000 years there were some 17 reversals of the temperature, some representing very short jogs (and thus 8 interglacial periods followed by glacial periods). This represents my inspection of a published chart. Clive Gamble (below) counts 8 complete interglacial/glacial cycles since 787,000 ya, but counts the last five periods since 127,000 ya as one. Other published results have noted 24 interstadials since circa 120,000 ya.

Some of the coldest temperatures are recorded at about 18,000 to 10,000 years ago (this includes the Younger Dryas), and represent a slow gradual decline from a warmer period 120,000 years ago, which followed another cold period of 200,000 to 130,000 years ago (186,000 to 127,000 years ago, per Gamble, below).

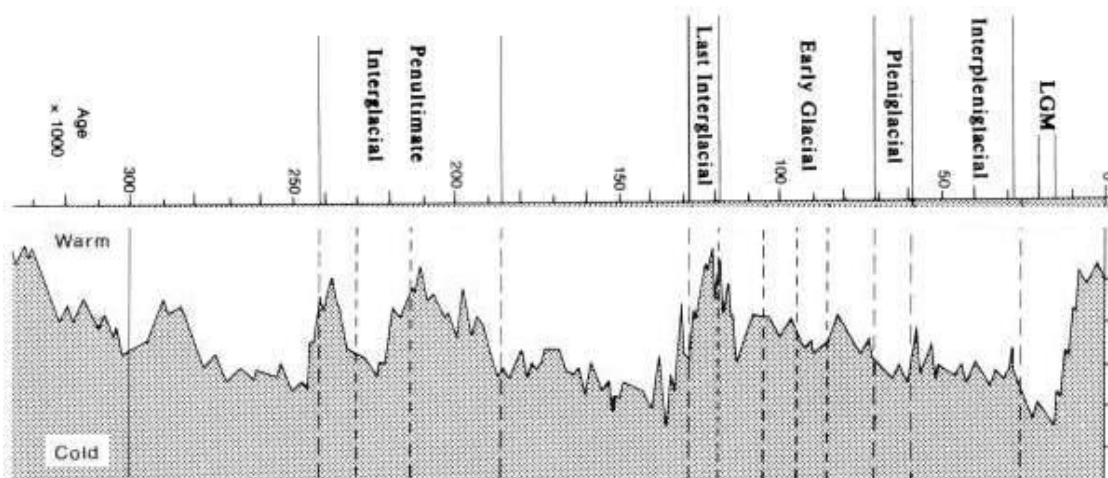
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Note 10 --

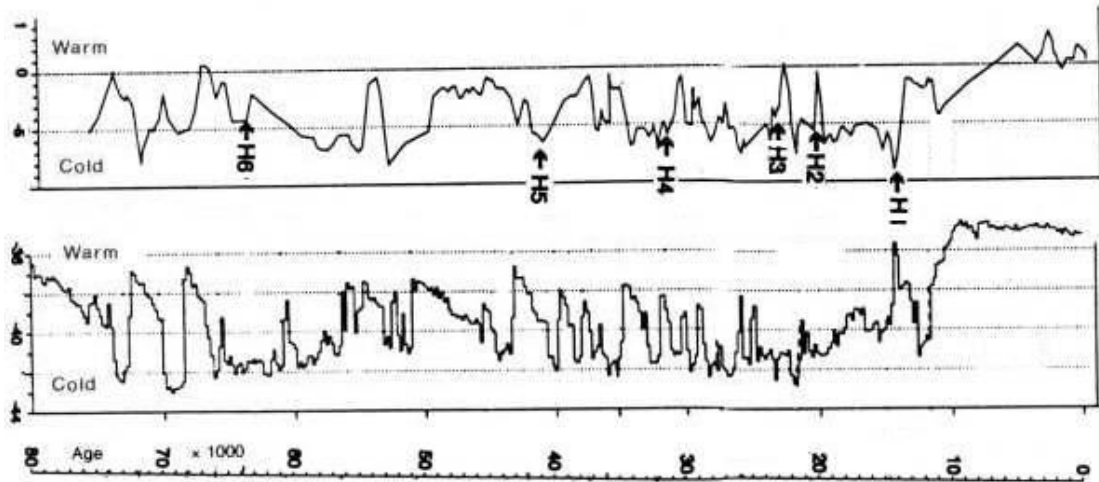
Tables of chronological correlations are shown by Clive Gamble, in *The Palaeolithic Societies of Europe* (1999). These include Oxygen-16 and Oxygen-18 ratios from a Pacific ocean Core, to 787,000 ya (page 103); another oceanic isotope core, to 350,000 ya, presented as the ratio of ice and ocean levels (page 185); and Greenland ice core and a pollen record (an Italian bog), to 80,000 ya, presented as mean (actually the mid-winter mean) temperatures of the pollen site and the ice core, along with ratios for tree and grass pollen (page 187). Reduced versions of these are shown below, with the temperature ordinate flipped to show temperature increasing to the top. Note that the units of the abscissa cannot be compared.



[Image: Oxygen-16 and Oxygen-18 ratios from the Pacific ocean Core, shown as representing oceanic water temperature, from 787,000 ya to the present. After Gamble, page 103.]



[Image: Oxygen-16 and Oxygen-18 ratios from an Oceanic Core, shown as representing ocean and ice cap levels (equivalent to oceanic temperature), from 340,000 ya to the present. After Gamble page 185.]



[Image: Upper chart: Temperature of the coldest month of an Italian bog. Lower chart: Ice Core temperature; From 80,000 ya to the present. The Heinrich events are marked. Heinrich events are dated debris layers carried out to the Atlantic by glaciers skidding into the ocean, and are suggested to represent melting conditions. After Gamble page 186.]

Gamble notes the chaotic nature of the records, and comments on the fact that there is, as yet, little agreement among researchers on absolute dates, or, for that matter, the mechanism which gave rise to the repeated cycles of glacial and interglacial periods.

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Note 11 --

Some of the interglacial periods listed for England do not match Oceanic Oxygen Isotope records which are suggested to represent worldwide temperatures.

The existence of **Homo erectus** in Europe is not well established. Erectus is today held to have a genesis in Africa. At an earlier time he was assumed to have first developed in Southeast Asia and in China.

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Note 12 --

The chapter "Event of the Younger Dryas" will present suggestions of electric field contacts with Saturn, based on atmospheric Carbon-14 level changes over the last 50,000 years. In the chapter "The Olmec Record of the Past" I'll suggest

that the Olmecs, or their predecessors, had records of the appearances of Saturn dating back to 41,000 years. The record in Europe, which may have been presented with the decorated caves, was cut short with the abandonment of Southern Europe with the cold of the Younger Dryas.

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Note 13 --

I have radically abbreviated the whole course of hominid fossils. If you are interested in more details, look at the following two recent books (plus Gamble, above) which describe the development of paleoanthropology and archaeology of the Paleolithic.

Ian Tattersall, in *The Fossil Trail* (1995), describes the workings of the discipline from the perspective of an insider. He has coauthored articles with Niles Eldredge (who developed the concept of "punctuated equilibrium" with Stephen Gould). Especially interesting are the details of how the researchers remained stuck with received wisdom, and only slowly adopted new concepts.

James Shreeve, in *The Neanderthal Enigma* (1995), spends more time on the European and Middle Eastern Neanderthal fossils. As a science reporter, his book is eminently readable, but as inconclusive as Tattersall's. Nothing really is resolved, yet all the data is presented, generally from discussions with the researchers at the source sites. Only in the last two chapters does he attempt a resolution, but it is entirely based on applying a contemporary perspective to the remote past.

What will strike you, in both books, is, first, that far ranging conclusions are based on enormously sparse data, and, second, that the conclusions which are reached are strongly embedded in contemporary philosophical constructs. Over the past century these have included, for example, the belief that brain volume related to advanced modernity, that there is some innate push toward progress (read, "us") in the changes of fossil forms over time, that only one species of "humans" would have existed at any one time over the last 5 or 6 million years (certainly not so), that all changes in body structure were gradual (driven by some form of Darwinian evolutionary theory), and that our forebears were like us in the many guessed-at aspects of behavior. All of these notions, as these two books point out, are baseless or wrong.

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Note 14 --

Clive Gamble notes that hominids (**H.erectus**) did not invade Europe until after 500,000 BC, and suggests a combination of the prior existence of large African predators and a very variable climate as responsible for their absence. The climate was the result of repeated extensive glaciation in Northwestern Europe. The cats disappeared after a half mya, but the variability of the climate in Western Europe, compared to the rest of the world, did not improve.

In Western Europe **H.heidelbergensis** appears after 500,000 BC, followed in about 300,000 BC by **H.neanderthalensis**. Both of these are indigenous to Europe. **H.sapiens** (Cro-Magnon) is a foreigner who invades Western Europe after 40,000 or 50,000 BC from the east.

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Note 15 --

The research of Eileen O'Brien in "The Hand Axe - A Million Years of Use" *Natural History* (1984), <http://archive.is/8B9jy>).

Information on the Olorgesaille site is related by Bill Bryson in *A Short History of Nearly Everything* (2004)

[\[return to text\]](#)

Note 16 --

The 300,000-year range includes **H.heidelbergensis** and signs of **H.erectus**. **H.neanderthalensis**, as a fossil of distinct morphology, dates from 100,000 to 15,000 ya. The date range is from Gamble, who does not distinguish between the three subspecies.

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Note 17 --

We are **H.sapiens.sapiens**. Erectus is officially **H.sapiens.erectus**; Neanderthal is **H.sapiens.neanderthalensis**.

[\[return to text\]](#)

Note 18 --

For the more recent speciation date of **H.sapiens**, see Ronald A. Fonda in "Age and Origins of the Human Species" *Mankind Quarterly* (2000). Other pages originally at <http://www.rafonda.com/> expanded on this. Throughout his

writings, Fonda identified the primary **H.sapiens** as "Eurasians," despite definitive differences between the two groups.

[\[return to text\]](#)

Note 19 --

The concept of the ice-free corridor between the Canadian Rockies and the Wisconsin glacier which covered much of Canada, which would form a route of entry between Alaska and the northwestern states of the US, has been rethought. "Even when the ice-free corridor existed it was utterly inhospitable," writes Charles Mann, in *1491, New Revelations of the Americas before Columbus* (2006). He also reports that the parallel concept of people streaming through the corridor as big game hunters and the extermination of all the large animals of North America (known as the "Overkill Hypothesis"), has been demolished by paleontologists. Most of the animals disappeared before any sign of humans. (But see my chapter "Event of the Younger Dryas.") Mann quotes Knut Fladmark of Simon Fraser University, as providing an alternative for the population of the Americas, based on migration by (fishing) boats from the northeastern coasts of Asia to the northwestern coasts of Alaska and North America:

"Even primitive boats could traverse the entire Pacific coast of North and South America in less than 10-15 years."

Mann adds:

"Native Americans may have been in the Americas for twenty thousand or even thirty thousand years. ... If [the archaeological date of] Monte Verde [in Chile] is correct, as most believe, people were thriving from Alaska to Chile while much of Northern Europe was still empty of mankind and its works."

A number of people have also suggested that South America was populated by migration via Antarctica, when at various times the coasts were reasonably devoid of ice, unlike today. The location of archaeological sites in southern South America almost force such a conclusion. This suggests, also, a migration via Australia, and the use of sea-going boats. Considering the very early migrations to the islands of the Pacific (long before the current establishment dates), the trip to Antarctica is quite plausible. The Antarctic ocean, as today, was teeming with fish.

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Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.017+ and deg=57.2+; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Chapter 8: Tunguska and Chicxulub.

\$Revision: 42.4 \$ (tung.php)

Contents of this chapter: [\[An Electric Field Interaction\]](#) [\[The Stratosphere\]](#) [\[Tunguska\]](#) [\[Chicxulub\]](#) [\[Grand Canyon\]](#) [\[Great Lakes detonation\]](#) [\[Endnotes\]](#)

Originally I attempted to find reasons for the darkness of the Younger Dryas, an aspect of prehistory specifically detailed by the Maya *Popol Vuh* and mentioned in every creation myth worldwide. My solution was to place Earth periodically in the shadow of Saturn, but I never felt that this was a satisfactory solution. Then I ran across the scientific papers by Richard Firestone, et alii, dating to 2001 and 2007 (with a book in 2005), and suddenly the problem of the Younger Dryas was solved.

The Younger Dryas is the period of 10,900 BC through about 9,000 BC. At the start of the Younger Dryas all the large animals (the megafauna) disappeared throughout almost all of the world, the North American continent completely burned up, mountain ridges melted, and the Laurentide Ice Sheet, which had covered most of Canada as the remnant of the last Ice Age, cracked and partially melted. And then, with the start of the Younger Dryas, it got cold, as cold as it had ever been for 30,000 years, and dry, although at first it rained incessantly. All of this is archaeologically well known and established. What has generally gone unrecognized is that these conditions probably resulted from a pervasive darkness which enveloped most of the Earth for 1500 years.

The oldest recollections of mankind, throughout the world, are descriptions of a lasting darkness before the advent of a chaos in the skies and before the "creation" event. At the time when the first narratives were recorded, after 2000 BC and later, the "darkness" was only dimly recollected. It had occurred in a period which at that time lay 8,000 years in the past.

This chapter will deal with some examples from the past which have informed the analysis of the event at the start of the Younger Dryas. I will detail the actual experience of the event of 10,900 BC in the next chapter. In this chapter I want to review the workings of a repulsive electric field interaction, detail how this

affects the stratosphere, and relate what happened at Tunguska. The incident of the explosions at Tunguska is something which the Firestone group, as well as everyone else, will replay endlessly and use as an analogy to explain other events. And I will also show something of the scope of the explosive electric arc damage of both the Chicxulub crater and the Grand Canyon, and present the Great Lakes atomic detonation. These electric field and electric arc interactions are not to be neglected.

"... and darkness was on the surface of the abyss."
-- book of Genesis

Ancient "mythical" records, like the Bible passage quoted above, do not record details of the darkness, so that we do not know if it might have been cyclical. We would have to assume that if the Earth was cast in darkness for an extended period in the remote past, the period of darkness would have to be moderated -- not darkness, but "shadow" as the Maya *Popol Vuh*, in fact, claims. [\[note 1\]](#)

The Guatemalan *Popol Vuh*, a 16th-century native book in western script and obviously derived from older sources, extensively recalls the period of darkness and cold. The complaints, for a people likely living in the tropical region of Northern Brazil, were of a lack of light and of cold rains. The *Popol Vuh* discusses the "shadow" (and the cold) for the first three quarters of the complete narrative. The *Popol Vuh* also hints at an earlier time of a better climate. As the introduction reads:

"And here we shall take up the demonstration, revelation, and account of how things were put in shadow and brought to light."

But where did the darkness, or "shadow," come from? The *Popol Vuh* never even hints at a cause for the shadow. From what we know of later conditions, the most likely suggestion is that the shadow was the result of an electric field interaction with Saturn, or possibly one of its companion planets.

If Earth and Saturn came close enough to have the plasmaspheres touch and merge, the result would have been far from benign. When Earth by chance moved into the plasmasphere of Saturn, Earth experienced a sudden stunning electric field repulsive impulse, a shock which, if we go by the events discussed in later chapters, would have radically altered Earth's orbit, Earth's landscape, and Earth's climate.

The above scenario is based on the record of what happened. But Saturn should be expected to have carried a large positive charge (but with a negative surface charge), since it came into the Solar System from beyond the plasmasphere of the Sun. Saturn was a star. Thus any Solar System planets would have been very negative with respect to Saturn's positive charge. The resulting electric field interaction should have resulted in attractive forces. And perhaps this was responsible for moving Earth into the gravitational influence of Saturn.

But the damaging shock was clearly repulsive, and thus compressed the Earth's surface. A compressive shock would have raised the temperature of the atmosphere of the region facing Saturn or Mars by thousands of degrees, enough to incinerate every tree and bush in a radius of a thousand miles -- and, as it turns out, to a radius of 2000 miles (3200 km) in some directions. The carbon dust from this, on entering the stratosphere, would have shut down sunlight everywhere, probably for hundreds or a thousand years. In fact, for 1500 years.

It happened in North America. This is what was reported in scientific papers in 2001 and 2007. It is amazing that humans throughout the world survived the 1500 years of the Younger Dryas. Large animals did not -- a sudden extinction wiped out all the megafauna of North America and later in Asia, Europe, and South America. Within weeks a darkness started to envelop the Earth, and large animals (elsewhere than in North America) were unable to switch to different food sources as these dried up and died out. Smaller animals required less food than the giant herd animals, and survived. After the beginning of the Younger Dryas all of the large herd animals of the northern and southern temperate zones went extinct. The tropics would remain somewhat warmer and thus able to support plants for feed and grazing. India and Central Africa were thus less affected as a result. One species of elephant survived in Africa and another in India. In Northern Asia 12 elephant species disappeared.

The loss of so many large animal species in North America has led archaeologists to suggest an influx of humans around 10,000 BC, who hunted the herds to extinction. This notion, known as the "overkill theory," is no longer accepted as viable. Humans were hunting in North America since some 40,000 years ago. So says Richard Firestone.

Some archaeologists will hold that the "die-off" of the large North American animals happened progressively over this period (13,000 to 11,000 years ago), without any apparent evidence of cataclysmic exterminations. Parallel extinctions happened in Asia (13,000 to 11,000 years ago) and South America at

about the same time (circa 11,000 years ago) or somewhat later by a few hundred years, and a separate megafauna extinction had happened already in Australia and Southeastern Asia 41,000 years ago.

Since this original observation, there have been suggestions (of course) of some "meteor impact" at the beginning of the Younger Dryas, specifically in North America. By itself, this does not account well for the other continents. Additionally it is almost absurd to suggest that a meteor, or even a series of hundreds of meteors, could result in 1500 years of drought and the coldest climate ever experienced on Earth, and, as I have mentioned, darkness.

The North American extinctions stand out because of the great variety of species which still existed, mostly undisturbed by humans. Small animals, marine animals, and plants survived. The "die-off" also cannot be blamed on the start of an ice age (despite the start of 1500 years of severe cold), for ice ages had already occurred many times without causing extinctions. The last Ice Age had ended 2000 years earlier. The Younger Dryas chilled the Earth extremely -- it had only once been that cold before, and never since -- but there was no build-up of glaciers anywhere during this period.

An Electric Field Interaction

When Earth encountered the plasmasphere of Saturn -- at the beginning of the Younger Dryas -- all hell broke loose. Impacts like this must also have happened many times before. Richard Firestone provides data which clearly suggests (to me, not to Firestone) two other times when Earth made contact either with Saturn or with one of its planets (thousands of years earlier), and many other times which are not as clear. This will also be described in the following chapter.

But the event at the start of the Younger Dryas was significantly different from the two earlier contacts, as described by the data concerning the movement of the Earth's magnetic field. This suggests that the Earth may have remained within Saturn's plasmasphere (which included Mercury and Mars) after 10,900 BC, at a location well below the equatorial level of Saturn. We actually don't know, for it got dark, and it remained dark for 1500 years, so we have no descriptions of what might otherwise have been seen in the sky. Not "darkness" actually, but "in the shadows," as the *Popol Vuh* describes it. By the time the shadows lifted, the Earth was clearly well below Saturn.

Why Earth would have stayed so close to Saturn (although at 3,000,000 or 6,000,000 miles separation -- 10,000,000 km) is an enigma. One explanation is the concept of a "sphere of influence" for gravitational bodies, already brought forward earlier in these texts.

The result of making contact with another plasmasphere can be predicted. It would involve four events, very closely spaced in time. What follows is based on repulsive forces, and the interaction is explained for these conditions. As an attractive force (which it might have been) I cannot readily make sense of the events. Obviously there is much more to this situation than would be suggested at first. I am likely neglecting the sheets of charged layers surrounding the planet Saturn.

- First, on entering Saturn's plasmasphere the negative charge of Earth would have been sensed when the Earth fell in line with Saturn, causing a massive repulsive force -- a shock impulse -- to Earth. The shock instantaneously compressed the surface of the Earth, but also the atmosphere, which would have caused a tremendous increase in the temperature of the air.

As I have already suggested, there are problems with this scenario, in that Saturn should have entered the Solar System with a very large positive charge. Thus any planets of the Solar System would be negative with respect to Saturn, and any electric field interaction would produce attractive forces. This is probably how Saturn managed to scavenge planets over a period of 3 or 10 million years, and, in fact, how Saturn was able to eventually remain as a member of the Solar System.

Since we have no history of when and for how long Earth might previously have been in near contact with Saturn, we have no idea of the value of the possible positive or negative charge carried by Earth or by any of the planets below Saturn.

However, the evidence for the 10,900 BC event is for a repulsive shock, which suggests that Earth and some other planet below Saturn were at near equal electric potential. The reason for insisting that the second planet was Saturn and its companions is that after the shadow lifted, Earth was below the south pole of Saturn -- in fact, below Mars. I will thus continue with the effect of a repulsive force, which, at any rate, is applicable to almost all later planetary interactions.

The repulsive force, if offset from the center of Earth (as, for example, in being applied north or south of the equator), would suddenly tilt the rotational axis of the Earth away from the direction of the applied force. The sudden tilt of the Earth's axis will cause a gyroscopic reaction for the sphere of the Earth. The motion of the gyroscopic reaction would be nearly immediate and smooth, says Chris S. Sherrerd, writing in "Gyroscopic Precession and Celestial Axis Displacement" (*Pensee* 1973):

"Since gyroscopic precession involves a temporary transfer of angular momentum from spin to precession, when beginning and terminating it moderately affects the rate of rotation of a spinning object and introduces small horizontal forces on points on its surface; but it significantly shifts the absolute orientation of the spin axis in space as long as the precession continues in effect."

And, notes Sherrerd, this would happen without "major tectonic disruptions" and "without large angular decelerating and accelerating forces." This argues against many of the dire consequences proposed by other catastrophists in commenting on "collisions" of planets or "near collisions." We need to curb thoughts of endless tsunamis and sloshing oceans. Even atmospheric reactions would be limited. That is not to say that the shock wave itself would not propagate seismically, and cause extensive earthquake damage. But this is not due to the tilting of the Earth.

- Second, the side of Earth facing Saturn would have rapidly changed to an induced opposite polarity. This might be due to slight difference in potential, but especially aided by the existence of readily available material which will allow electrons to escape (move away). Obviously an atmosphere would qualify, as would the Earth's ionosphere (where electrons will move elsewhere at a speed of a thousand miles per second -- 1600 km/sec), and also ionized matter repelled from the Earth's surface.

The lightning of thunderstorms operates by way of induction: since like charges repel, the negatively charged overhead thunderstorm clouds clear the ground below of electrons, making the Earth's surface positively charged with respect to the clouds. The voltage at the Earth's surface is thus "induced" by the charge of the overhead clouds. With an induced voltage of opposite polarity at ground level, the voltage difference between the clouds and the ground is now doubled, and is a setup for a spark between ground and the thunderstorm clouds.

Ralph Juergens has related this condition of an induced opposite potential for the situation of arcing between Mars and the Moon (in the 8th century BC), suggesting that it was Mars that responded to the near presence of the Moon by changing the potential of the facing hemisphere to positive, even with an overall coulomb charge much larger than the charge of the Moon. See [["Of the Moon and Mars"](#)], originally in *Pensee* (1974).

Although Mars has a tenuous atmosphere (which is all that is needed to constitute the density required for a plasma), the Moon (today) has much less. Mars additionally has vast quantities of dust (with a conductive iron oxide content), which even today rises hundreds of feet from the surface of the planet, in tornadoes and planet-wide dust storms. The last possibility to consider is that Mars may have been positively charged yet at the time it contacted the Moon with an arc, 3000 years after having spent at least 40,000 years close to Saturn. This suggests that Earth might also have carried a positive charge at an earlier time, that is, at the start of the Younger Dryas.

- Third, with the induction of an opposite polarity on the facing surface of Earth (as the most likely to yield to an induced voltage) the repulsive force would drop off in intensity very quickly and reverse to become an attractive force.

If the electric field force did not change from repulsion to attraction, Earth would have been propelled out of the Solar System, since there is nothing to curb the initial push away from the Saturnian system. I should point out that sensing the opposing electric charges of the two planets would operate instantaneously. But relocating (chasing away) electrons from the region of Earth facing Saturn would take time, probably measured in seconds or minutes, so that the whole process of the initial shock, its decline, and the induction of an opposing voltage would span perhaps some minutes.

- Fourth, the difference in polarity would now cause an attempt at charge equalization between the exterior planet and Earth -- an arc would pass between the two. The arc would start up within minutes after the first electric field contact of the planets, soon after the voltage difference was sensed.

Whereas the two planets initially were of the same voltage (potential difference), after an induced voltage has been set up, the planets would be at a

potential difference twice the magnitude of the voltage of either planet. (A rough estimate would suggest 10^{19} volts.) That will be a very large number, and certainly would drive an arc to travel immense distances, an arc not otherwise ever seen in the Solar System. The arc also would not travel through empty space, but through the planetary plasmaspheres or along its edges.

But an arc takes time to travel, since it consists of physical particles. If the other planet was the cathode and Earth the anode in this electric charge exchange (likely), the arc would have consisted of electrons from the exterior planet, which would be followed soon by protons and positive ions from Earth traveling in the opposite direction. The initial arc would therefore be no different from a terrestrial lightning bolt between clouds and the surface of Earth. It would have melted or excavated the surface of Earth where it landed, forming a crater or digging a hole, and ionized and expelled massive amounts of dirt and dust into the sky, and likely into space.

I should again point the reader to two articles by Ralph Juergens, written in 1974, which suggest such lightning strikes between the Moon and Mars. Found here as [\[part 1\]](#) and [\[part 2\]](#). Juergens does a very convincing job of delineating the details. See especially the differentiation of electric anode craters as flat molten surfaces. The magnitude of the electric arc exchange between the Moon or Mars is beyond all belief.

"Explaining a crater floor of bare, once-molten rock in terms of the conventional impact theory is a little difficult."

"One must resort to ad-hoc theorizing to the effect that something -- perhaps the shock of the postulated impact explosion -- melted a considerable volume of rock at some depth, and that following the explosion this material welled up to engulf the crater floor and flow around obstructions encountered there; otherwise, debris from the explosion itself could be expected to clutter the crater floor."

"Impact theory offers no reason, however, to expect such a sequence of events, and nothing in terrestrial experience with crater-producing explosions supports the idea."

The lightning bolt to Earth would have been lessened in its effect because of the Earth's atmosphere. Juergens (in "Moon and Mars") quotes others to the effect that terrestrial lightning is probably reduced by 90 percent because of dissipation by the air that it travels through. A typical terrestrial lightning bolt

would cause a crater 250 feet in diameter on the Moon, rather than, for example, just splitting a tree trunk on Earth.

For a Mars to Moon strike, Juergens steps through the process of developing a leader stroke. For Earth thunderbolts this is the pre-stroke passage of electrons between the Earth's surface and an overhead cloud. For the particular condition of the Moon and Mars, which was accomplished at very close distances (tens of thousands of miles), and did not involve (in this instance) a merging of plasmaspheres.

A contact between Earth and Saturn, or a Saturnian planet, would be significantly different. The distances between the planets would have been immense (millions of miles), and the brushing of one plasmasphere against another might have been the guiding form through which the interactions were accomplished. A leader stroke did not need to be developed, since the double layer at the outer edge of the plasmaspheres is a conductor. The path for a lightning stroke is established as soon as the two planets became electrically aware of each other, although the travel of the actual arc will take time.

I should also point out, that if we could have witnessed such plasma strikes, it would probably have looked a lot like a giant terrestrial hurricane or a tornado, with dust lifted up and swirling in circles about the center. "Electromagnetics and lightning have little or nothing to do directly with what drives tornadoes," says Wikipedia. But that is, in fact, not true; it is only wished to be true by Wikipedia. Just look at the 200-mile-high (320-km-high) tornadoes on Mars, where there is no atmosphere, with arcing at the surface. Tornadoes are exactly what Wikipedia says they are not: the transfer of electric energy between the ionosphere (or, for Mars, space) and the surface. On Mars the arcs at the base of the tornadoes can be seen. They show up as brilliant white patches in photographs. They leave blackened burn trails behind as they move over the surface.

- There is a final step in the process. The lightning bolt would cease if its conductive path is broken, perhaps as Earth moved away from the conductive double layer of the other planet's plasmasphere. This would result from the fact that Earth would keep traveling on its path around the Sun. It is also possible that Earth created a new plasmasphere which in effect isolated Earth electrically from its surroundings. It would thus become invisible again to the field (the electric charge) of the other planet.

[\[note 2\]](#)

Considering the ultimate interaction between Saturn and Earth, it could alternately be suggested that most likely the Earth, like the other planets associated with Saturn, eventually assumed an electric potential appropriate to its distance away from Saturn and within Saturn's plasmasphere. This also speaks to the creation of a separate plasmasphere within the plasmasphere of the other planet.

And what about the darkness before the chaos?

I'll suggest that the cause for the darkness was the thermal pulse which would have resulted from the initial compressive shock. This would have raised the temperature of the atmosphere by thousands of degrees. It would have incinerated all of North America. Normally shock waves are of very limited width (thickness), often a fraction of an inch. But this wave resulted not from a point source, as with a detonation, but from the compression of the atmosphere over an area a thousand miles (2000 km) in diameter. This shockwave emanating from the affected area would have been hundreds of miles in thickness. It would have presented a sustained high-temperature condition, not a single sudden hypersonic flash which passed in a fraction of a second.

The expanding compressive shock wave would have lofted ashes into the atmosphere and the stratosphere from the incineration (actually a carbon gasification) of plants and animals by the heat of the blast. The nanometer sized carbon dust in the stratosphere would cause a shadow to descend over the Earth. It is this, the shadow, which is the obvious cause for the cold climate during the Younger Dryas, and the dryness (cold air carries less moisture).

In addition, the electric arc between Saturn and Earth would send vast amounts of silicate dust into the atmosphere, which, along with the water vapor from the initial short-term melting of the Laurentide Ice Sheet, would likely cause massive rains initially. The *Popol Vuh* complains incessantly about the cold rains of the shadow period. Firestone, et alii, recognizes the rains also.

Let me now expand on all this with the introduction of a sequence of related topics, in the following order:

- nanometer dust in the stratosphere,
- the Tunguska event of 1908,
- the Chicxulub crater,
- the scar of the Grand Canyon,

- the Great Lakes atomic detonation.

The detonation in the Great Lakes region was initially reported by Firestone and William Topping in "Terrestrial Evidence of a Nuclear Catastrophe in Paleoindian Times" (*Mammoth Trumpet Magazine*, 2001).

This was followed in 2007 by Firestone and 24 other authors with an article which addressed the demise of the Laurentide ice sheet, the death of the megafauna, and the incineration of the landscape of North America, in "Evidence for an extraterrestrial impact 12,900 years ago that contributed to the megafaunal extinctions and the Younger Dryas cooling," (2007). I'll address this second paper in the next chapter.

Nanometer Dust in the Stratosphere



[Image: Stratosphere above the clouds. After Gerard Marull Paretas, Sergi Saballs Vil, Martm Gasull Morcillo, Jaume Puigmiquel Casamort, (C) Barcroft Media.]

The information about nanometer dust in the stratosphere (not the atmosphere) is straightforward, and even though based on "models" of climatic results. It has been an accepted and tested point of view for decades (originally as the "nuclear winter" scenario). I am introducing it below because it easily explains the "darkness" or "shadow" of the Younger Dryas. This effect has been largely

neglected by researchers involved with the cataclysm at the beginning of the Younger Dryas, for it represents a massive extension of the scale of the climatic effects, despite the admission by the researchers that the cataclysm itself was absolutely overwhelming.

This is also something they (and we) do not want to think about, since the possibility for a nuclear winter remains hanging over our heads as long as we have a proliferation of nuclear weapons and unstable governments.

The concept of dust in the stratosphere is addressed in an article in the January, 2010, issue of *Scientific American*, by Alan Bobock and Brian Toon, "Local Nuclear War, Global Suffering," which makes the case that a limited regional war between India and Pakistan, which would detonate about 100 Hiroshima-sized nuclear weapons (15 kiloton of TNT yield each), would loft micrometer-sized smoke (100 nanometer) into the stratosphere -- resulting in crippling global agriculture for a period of 10 years. Ten years is a conservative estimate. The editors of *Scientific American* sum up the article in a side bar:

- *"Nuclear bombs dropped on cities and industrial areas in a fight between India and Pakistan would start firestorms that would put massive amounts of smoke into the upper atmosphere."*
- *"The smoke would reach the troposphere [the upper region of the atmosphere] within two days. The sun would then heat the tiny particles and loft them into the stratosphere. Precipitation never occurs there, so particles would take about ten years to fully settle to earth's surface. Smoke in the troposphere washes out within a week or so."*
- *"The particles would remain there for years, blocking the sun, making the earth's surface cold, dark, and dry. Agricultural collapse and mass starvation could follow. Hence, global cooling could result from a regional war, not just a conflict between the U.S. and Russia."*
- *"Cooling scenarios are based on computer models. But observations of volcanic eruptions, forest fire smoke and other phenomena provide confidence that the models are correct."*

"Cold, dark, and dry" are short for the conditions complained about in the *Popol Vuh* for three-quarters of the book, except that it is endless rains, rather than dryness, which is part of the complaint of the *Popol Vuh*. The rains at the

beginning of the Younger Dryas are the result of the initial water vapor from the partially melted Laurentide Ice Sheet and the silicate dust and particulate matter in the atmosphere due to interplanetary lightning strikes. The excess water vapor in the atmosphere would be turned to rains by the atmospheric dust, even in a cooling climate. Climatologists have especially noted that the tropics received extra rain during the Younger Dryas. The *Popol Vuh* records this condition for a latitude of 10 to 15 degrees north.

A similar condition of initial rains was noted for the period after the year 1492 BC: initially, massive rains washed soil away, and then rivers and lakes went dry.

The authors Bobcock and Toon, of the *Scientific American* article, write about their model:

- *"The smoke covered all the continents within two weeks. The black sooty smoke absorbed sunlight, warmed, and rose into the stratosphere."*
- *"The climatic response to the smoke was surprising. Sunlight was immediately reduced, cooling the planet to temperatures lower than any experienced for the last 1,000 years. ... Precipitation, river flow and soil moisture all decreased because blocking sunlight reduced evaporation. ... Drought was largely concentrated in the lower latitudes [the sub-tropics]."*

The "nuclear winter" model has been around for thirty years. The authors only provided improvements in modeling. They tested their model against historic volcanic eruptions -- Tambora 1815, Krakatau 1883, Pinatubo 1991. They write: *"The surface temperature plummeted after each eruption in proportion to the thickness of the particulate cloud. ... Global precipitation, river flow and soil moisture decreased. Our models reproduce these effects."* The authors note that volcanoes produce sulfate clouds (Sulfur Dioxide aerosols), which remain suspended in the upper atmosphere "for some time," but do not rise into the stratosphere.

Other sources (like Wikipedia) disagree on the clearing time for volcanic eruptions, thinking it to be longer. Based on the effect of the 1991 eruption of Mount Pinatubo (the largest since Krakatau in 1883), a period of years (rather than "some time") is suggested:

"Stratospheric sulfur aerosols are tiny sulfur-rich particles of solid or liquid, or a mixture of the two, which exist in the stratosphere region of the

Earth's atmosphere. When present, after a strong volcanic eruption [which can "inject" gases directly into the stratosphere] such as Mount Pinatubo, they produce a cooling effect for a few years before the particles fall out, by reflecting sunlight, and by modifying clouds as they fall out of the stratosphere."

"An aerosol is a suspension of fine solid particles or liquid droplets in a gas. The sulfate particles or sulfuric acid droplets in the atmosphere are about 0.1 to 1.0 micrometer (a millionth of a meter) in diameter [1000 to 100 nanometer]."

-- Wikipedia

I should point out again that the estimate of the duration of the cooling and drought as 10 years is a conservative estimate. I am offering this information as a base condition to events involving extensive wildfires. Later chapters will point up two other periods of drought and coolness which were recorded by the people of Mesopotamia and Mesoamerica, and which can be attributed to events of 2193 BC and 1492 BC. The 2193 BC event was felt in Sumer and in Egypt as a failure of agriculture, and lasted 200 years. In Egypt the Old Kingdom came to an end; in Mesopotamia the Akkadian empire fell as agriculture was inhibited by a lack of sunlight.

The Tunguska River Event in 1908



[Image: Tunguska. After Leonid Kulik Expedition.]

Electric field interactions between charged objects has been witnessed by humans. On June 30, 1908, at about 7:30 in the morning, a bolide from outer space approached the Earth's surface at the Stony Tunguska river in Siberia, and exploded. Deafening explosions were heard hundreds of miles away. A shock wave traveled twice around the Earth. From 40 miles (60 km) away it was experienced as a fireball in the sky, a flash of heat, followed by a series of explosions. People were knocked down, and windows broken.

Reindeer herders 30 miles (50 km) from the center of the impact were thrown about while in their shacks by the air shock, while singing trees fell around them. There were 4 thunderous explosions, the earth shook, and a horizontal shockwave felled trees over an area larger than New York City. A flash of heat set dead tree branches and moss on fire.

But there was no impact, there was no crater, there was no meteor debris. Sixty million trees, some up to three feet (a meter) in diameter, and 15 to 20 miles (30 km) away from the center, were blown over, yet the trees in a five mile (8 km) diameter circle at the center were left standing, with only their branches removed. Trees within the central half of the area were scorched.

William K. Hartmann, in "1908 Siberian Explosion: Reconstructing an Asteroid Impact from Eyewitness Accounts" (Internet, 2010), summarizes the extent of the event as follows:

"Seismic vibrations were recorded by sensitive instruments as much as 1000 km (600 mi) away. At 500 km (300 mi), observers reported 'deafening bangs' and a fiery cloud on the horizon. About 170 km (110 mi) from the explosion, the object was seen in the cloudless, daytime sky as a brilliant, sunlike fireball; thunderous noises were heard. At distances around 60 km (40 miles), people were thrown to the ground or even knocked unconscious; windows were broken and crockery knocked off shelves. Probably the closest observers were some reindeer herders asleep in their tents [huts] in several camps about 30 km (20 mi) from the site. They were blown into the air and knocked unconscious; one man was blown into a tree and later died. 'Everything around was shrouded in smoke and fog from the burning fallen trees.'"

-- <http://www.psi.edu/projects/siberia/>

Well, not "burning trees" by other reports, nor "blown into the air" either, as the actual accounts further below will show.

Hartmann estimates the explosive energy reaching the ground as the equivalent to 60 atomic bombs (a value of about 900 kilotons of TNT). But this represents about half of the total energy involved. He calculates the total energy at two orders of magnitude (100 times) greater than the Hiroshima atomic bomb of 15 kilotons -- 1500 kiloton. Others have estimated 3 orders of magnitude (1000 times) -- 15,000 kiloton. Some Russian researchers have estimates of less than 15 kilotons of TNT, which might actually make much more sense. I'll return to the sense of scale further below.

... description of the event

"In the settlement of N[izhne]-Karelinsk (about 200 versts [130 miles, 200 km] to the north of Kirensk) the peasants saw in the northwest, quite high above the horizon, some sort of body glowing with an extraordinarily intense (such that you couldn't look at it) blue-white light, moving downwards from above over the course of 10 minutes. The body took the form of a "pipe," that is, a cylinder."

-- Irkutsk newspaper *Sibir*, 2 July 1908.

If my sense of direction and distance is correct, then the view from Nizhne-Karelinsk was from a direction somewhat south of east from the impact area, and about 170 miles away (275 km). The object in the sky must have been huge to be seen from such a distance. But this was the coma which was seen, a shape much larger than the actual physical object. What was seen was an asteroid (meteor) going into arc mode plasma discharge ("intense, blue-white light") which soon developed a plasmasphere tail (a "pipe"). [\[note 3\]](#)

In arc mode discharge the object would have been under severe stress, since in arc mode the current tends to increase without limit. This would soon have resulted in the explosive rupture of the rock of the asteroid.

This was, by the way, an asteroid -- a rock or set of rocks. It has been called a meteorite, but "meteorite" is only the name for an object that enters the Earth's atmosphere and makes it to the ground. It has also been called a "meteor" or a "comet," but again, the word "meteor" is used for any object which develops a streak on entering the Earth's atmosphere (or so it is thought), whereas a "comet" is a far away object which exhibits a plasma tail. Comets are thought to be balls of ice, and their tails are thought to represent, as one website explains without blinking, "gas flying off the comet" and "ions being blown away by the solar wind."

Comets are not balls of ice; they are rocks, and thus are asteroids, although old definitions have a tenacious hold on the minds of NASA Press Release writers -- and not a few scientists. Although this is clear today, much of the analysis of the Tunguska Event has been built around the "explosive" effects of a ball of ice or water in reaction to the severe compressive shock front of air experienced by the comet on entering the Earth's atmosphere. [\[note 4\]](#)

The Tunguska "comet" probably did not reach the atmosphere, since it blazed for ten minutes. What was seen were electrons being released -- torn out of the silicate matrix of the rock -- in an attempt to accommodate the voltage of the intruding asteroid to the electric field of the Earth. Entering the Earth's plasmasphere, the asteroid would be at a potential mismatched to that of the Earth. The fact that the "pipe" behind (or above) the object extended a finite distance is significant in indicating how far behind the asteroid, in time and distance, the voltage equalization was. The pipe was, at any rate, not described as a smoky trail, like that of a rocket or burning object, nor as a pointed spike or a curved tail typical of far-away comets. In "ten minutes" of being propelled at

an average speed of 20,000 miles per hour (32,000 km/hr), the bright object was obviously not within the atmosphere of Earth most of the time either. If it was seen approaching for ten minutes, it would have traveled 3000 miles (4800 km). The atmosphere extends about 75 miles (120 km) up.

What I would expect to happen next, as the asteroid headed toward Earth's surface at an (estimated) angle of 15 or 30 degrees (which is not material) is that after the arc mode plasma would rupture the rocks, the "blue-white" arc mode would disappear in favor of a glow mode display (because more surface area was suddenly provided). And, in fact, many observers first saw the object after hearing the first of four explosions and describe it as glowing or in flame. The color of a "flame" is not the "extraordinarily intense blue-white light" described earlier. So it was no longer in arc mode at this time.

"At the beginning of the ninth hour of the morning, local time, there appeared a fiery sphere which flew in a direction from the southeast to the northwest. This sphere, as it neared the earth, took on the form above and below of a flattened sphere (as was visible to the naked eye); approaching even nearer to the earth, this sphere had the look of two fiery columns. As that enormous mass fell to earth, there occurred two strong crashes, like thunder, but the fact that the sky was completely cloudless may serve as proof that it was not thunder."

-- M. R. Romanov, observer, 1908.

Romanov reported what was perhaps a split tail, which other observers might not have seen. It would depend on their vantage point. One tail would consist of glowing silicates, actually leached from the asteroid ("sputtered") and strewn (electrically repelled) along the path of its trajectory. The other column would be located straight up from the asteroid and consist of electrons and ions defining a shadow of the earth's electric field -- and thus pointing away from the Earth above the incoming object. The observation may also represent the flattened sphere suddenly being blown back along its trajectory (or more likely at a right angle to the Earth's surface) on sensing the Earth's repelling electric field.

Importantly, he describes a "flattened sphere." I was actually on the lookout for a "flattening" among the eyewitness reports, for I would think that the next event in order would be a massive repulsive electric field force between the object and the Earth, which would have affected both the asteroid and the

"impact location." There are three reports of a flattening. In the newspaper article quoted below it is described "as if the body spread out."

*"Nearing the ground (the forest), it was as if **the shining body spread out**, in its place there formed an enormous puff of black smoke and there was heard an extraordinarily powerful rumble (not thunder), as if from large falling stones or cannon fire. All the structures shook. At the same time a flame of undetermined form began to break out of the cloud."*

-- *Sibir* newspaper report.

The black cloud might have been a pulverization or breaking up of the asteroid. The black cloud would not have been a shadowing by the Sun, which at that time of day was about 26 degrees up in the eastern sky. (Sunrise at 61 degrees north latitude is at 2:38 AM at 54 degrees north of east on June 30th.) It was not observed if the Earth's surface was hit, for the impact location could not be seen (being 170 miles away, 270 km). But it is certain that the ground had been hit with a massive compressive impulse, which would translate to a flash of heat, because as the pressure of contained air goes up, so does the temperature (the Gas Law formula is $pV = nRT$). At the speed with which this happened, the air would be considered as briefly contained, that is, incompressible. The same compression, of course, would happen at the bolide, and most likely explains the "black cloud" as dust. A heat wave moves at the speed of light.

The observation of a "black cloud" matches other observations which note that "the sky opened up." I considered this a very strange observation, and initially thought of it as idiomatic to the local Siberians who furnished the descriptions. But after repeated reports I started to understand the "opening of the sky" as expressing the notion that suddenly and briefly, and over a limited area in the sky, the stars were seen. This is to be expected as a result of an instantaneous compressive impulse, which in effect moved all the atmosphere aside. The stars were seen.

An additional impressive account of the possible disintegration of the bolide was provided by Leonid Kulik (who first investigated the site in 1921, and made additional visits up to the 1930s), as reported by an eyewitness, Semen Semenov. Again we have the suggestion of the object flattening or, as stated below, widening:

*"I suddenly saw that directly to the north, over Onkoul's Tunguska road, **the sky split in two** and fire appeared **high and wide** over the forest. The split*

*in the sky **grew larger**, and the entire northern side was covered with fire. At that moment I became so hot that I couldn't bear it, as if my shirt was on fire; from the northern side, where the fire was, came strong heat."*

"I wanted to tear off my shirt and throw it down, but then the sky shut closed, and a strong thump sounded, and I was thrown twenty feet. I lost my senses for a moment, but then my wife ran out and led me to the house. After that such noise came, as if rocks were falling or cannons were firing, the earth shook, and when I was on the ground, I pressed my head down, fearing rocks would smash it."

"When the sky opened up, hot wind raced between the houses, like from cannons, which left traces in the ground like pathways, and it damaged some crops."

This is the third instance of a flattening or broadening of the object, here presented as "the sky split in two" followed by "the entire northern side [of the sky] was covered with fire." Again, here is a description of the sky "opening up." The same compressive forces experienced at ground level also resulted first in a compression and then an expansion of the atmosphere below the bolide, likely shattering the bolide, and bringing the dust and particulate matter to incandescence. The radiant heat was felt immediately by Semenov, followed by a shove of what I will here suggest was a repulsive electric field force emanating from the bolide.

This would be minor compared to what would be experienced at the so-called "impact location" below the overpassing bolide (although he reported being thrown 20 feet). I am suggesting that Semenov experienced the compression of air due to a repulsive electric field force because the narrative description implies no time distinction between the "thump" and the moment of being thrown. The flash of heat traveled at the speed of light. But the electric field force is instantaneous, although modified by the intervening mass of air. By comparison, the following "rumble" implies a separation by a distinct time period after being thrown. (This is inadvertently modified in two instances when Semenov backtracks to add details to items mentioned earlier.)

The rumble and sound like cannons being fired or rocks falling is possibly the sound of the air compressing, expanding (from being heated), and then falling back in to fill the resulting void. These are the sounds of a large object, here a mass of air, rather than the sound from discrete locations like a thunderclap. But it is possible that these rumbling sounds were associated with the compressive

impact at ground level (after all, some 60,000,000 trees fell), but I doubt that such sounds would have carried well through the intervening forest of trees for the sound to arrive as soon as is suggested by the quoted text.

Semenov experienced the heat, then a shock ("a strong thump") from the compression of air, followed by the sounds from overhead, a number of them arriving at closely spaced intervals, like "rocks were falling or cannons were firing," and then an Earth tremor from the shock experienced at ground level below the bolide ("the earth shook"). The sequence of these -- the heat, the thump or jolt, rumbling sounds, and the Earth tremor -- is correct for the mechanics described above: the radiant heat pulse traveled at the speed of light, the thump and the jolt nearly so, but would have been delayed by the mechanics of compressing air (possibly this represented a shock wave from the explosive compression propagated through the air), the rumbling sounds were generated seconds later as the air at various locations collapsed into cavitated spaces, and the Earth tremor traveled much more slowly through the ground, although faster than the speed of sound in air.

... sequence of events

What had happened here in this sequence is that the voltage of the Earth and the object had been noticed by both, and both were negative. This would result in a repulsive force between the object and the Earth, which would be experienced at each end as a compressive impulse. It is this which constituted the first loud bang, the change of the object to a flattened shape, and the appearance of a black cloud.

The loud bang could have been an initial lightning strike, however, so that the repulsive electric field impulse may thus have been skipped, although I really doubt it. What followed is that the bolide, being at a greater negative voltage than the Earth, induced a positive voltage at the surface of the Earth below the object. That would have been immediate cause for a lightning strike between the bolide and Earth in an effort at charge equalization.

If the bolide came into the Earth's upper atmosphere with a coulomb charge representing a thousand billion volts difference, then after a positive voltage was induced at the Earth's surface, there would be voltage difference of two thousand billion volts.

None of this is altogether too certain, because there are numerous variations in the parameters governing the interactions, and additionally there is considerable variation in the reporting of the event. Of the physical parameters, I should point out, for example, that the electric field of the Earth is not linear near the surface. It varies locally, although generally decreasing in negative value as Earth is approached.

How the electric field of the Earth was additionally distorted at the Tunguska "impact" location is hinted at by N.V. Vasilyev, a Tunguska researcher, who, in "The Tunguska Meteorite: A Dead-lock or the Start of a New Stage of Inquiry?" (*Tunguska International Workshop*, Bologna, Italy, 1996), wrote that the "explosions" happened directly over the mouth of an ancient Triassic volcano. This would seem to have provided an electric discharge path directly to the interior of the Earth.

When the object came within this striking distance for an arc, it was hit with a thunderbolt from Earth. This may have been relatively close to the ground. Investigators have suggested an elevation of about 5 miles (8 km) above the Earth for the altitude at which the object exploded. This is a lot. It is likely that the thunderbolt, and apparently a number of subsequent thunderbolts (identified by local observers by their flash of light and clap), broke up and disintegrated the object. At least, so it is suggested by later researchers until more recently when a theory that the object exploded by itself, for unknown reasons, came into vogue.

... energy estimates

If it is held that the bolide exploded aerially, then the researchers have to take a completely different accounting of energy levels. The devastation at ground level now has to be accounted for by an explosion five miles (8 km) above the ground. Considering that the effect of an explosion falls off as the square of the distance, the energy level attributed to the overhead explosion would have to be set at a thousand or a million times the effect felt at ground level.

In fact, Ari Ben-Menahem, in "Source parameters of the Siberia explosion of June 30, 1908, from analysis and synthesis of seismic signals at four stations" (*Physics of the Earth and Planetary Interiors*, 1975), suggests 5 orders of magnitude (100,000 times). If the explosion occurred at a height of approximately 7.5 km, then a total energy release of approximately 3×10^{17} J.

23 ergs (7,500,000 tons of TNT) would be required to result in an estimated seismic (ground level) energy of 5×10^{18} ergs (125 tons of TNT).

The same holds for the scorching of the central portion of the felled trees. The scorching heat at ground level would probably be on the order of under 1000 degrees Fahrenheit (800 degrees Fahrenheit is the ignition temperature of dry wood) and be experienced for a very short duration (there is no disagreement on these two factors), but, because of the same assumption of a radial falloff, the temperature of the overhead "fireball" has been estimated at 30,000,000 degrees Fahrenheit -- hotter than the Sun. The result is that investigators are searching for physical and mechanical explosive processes far in excess of anything that is required to fulfill the conditions that were experienced.

The mainstream scientific identification of the "impact area" was initially based on the effects of an explosive shock wave from a blast at the surface of ground zero. It assumed a trajectory for the object which would have intersected the Earth's surface at the location of the "impact site." It most likely did not. It is very likely that the object overflowed the "impact zone" and landed somewhere further afield in the northwest. If it landed at all.

This was understood later when no impact depression was found and no remnants of a meteor. At that time it was suggested by the scientific establishment that the object had exploded while miles above the Tunguska epicenter.

At any rate, the ground was hit hard enough to cause an earthquake estimated to be the equivalent of a 5th magnitude on the Richter scale (this was before the Richter scale was adopted). This, and the subsequent travel of a blast of superheated air, are the evidence of a repulsive electric field impact force, not of a surface impact. The downward compressive impulse would have been established instantaneously, although it would take time to compress the air and then have it blast out sideways from the center. And it let up quickly after that. It also had nothing to do with a continuation of the trajectory of the object. The compressive impulse happened perpendicular to the ground, below the object as it was traveling. The heat of the shock wave would have ionized the air enough to allow an almost immediate return thunderbolt. This may have broken the object up -- but it has also been suggested that the bolide continued to travel toward the northwest.

The high temperature wave of compressed air traveled laterally along the ground away from the center singed dead pine needles, moss, and dead branches

of trees (not "burning falling trees" as Hartmann wrote). The pressure of the air expanding laterally also snapped or uprooted 60,000,000 trees (some of which were dead standing trees). Once the extent of the damage became known, new causes were sought. Thus, as mentioned, the later analysis of the physics of this event envisioned a shockwave of compressed air, generated when the comet or meteor exploded while still 3 to 6 miles (9.5 km) above the ground.



[Image: Downed trees at Tunguska. Image after Leonid Kulik Expedition.]

"The spectacle that confronted Kulik [an investigator in 1921] as he stood on a ridge overlooking the devastated area was overwhelming. He saw an area where trees up to three feet in diameter had snapped like toothpicks, were uprooted and strewn across the landscape." Quoted from ICR, 2019.

... observations

Wal Thornhill has provided a more coherent explanation both for the brilliance of the Tunguska object and for its catastrophic explosion, writing in an essay, "Comets & Lightning Jets" (2003):

"The meteor trail acts as a giant lightning rod that connects the conducting ionosphere to the upper atmosphere. If the earth is an electrical body in an

electrical solar system, it is the equivalent of a temporary short-circuit of a giant capacitor. The current flowing along the meteor trail gives rise to the unexplained brilliance and long-lasting glows of some meteors. It causes them to disintegrate like an exploding capacitor, high in the atmosphere. The Tunguska explosion was probably the most noteworthy example of the effect."

-- at <http://www.holoscience.com/>

In Thornhill's model the "meteor trail" is likely dark, consisting only of recently ionized gases of the upper atmosphere, reaching 300 miles (480 km) up into the ionosphere. [\[note 5\]](#)

Thornhill neglects the electric field repulsive coulomb force, for this so far exceeds anything that can be imagined, that it is just beyond comprehension, despite the fact that it is inherently obvious from electrical theory. It is also obvious from the 60,000,000 downed trees. Thornhill, however, also points out:

" [A "crucial distinction"] between the planetary catastrophism of the Electric Universe and that of neo-catastrophists who attempt to explain the evidence for planetary encounters in terms of cometary phenomena: Modern comets simply do not fit the descriptions from the past. Nor can they account for abundant evidence of fresh looking planetary cratering and scarring."

"Besides, in an Electric Universe comets are not the apocalyptic threat to the Earth imaginatively portrayed by artists. Such pictures are entirely fanciful because a comet would be disrupted electrically by a cosmic thunderbolt before it hit the Earth. The only visible evidence remaining would be an electric arc crater."

-- Wal Thornhill

The object in the sky disappeared and nothing of meteorite fragments has ever been found at the blast zone. Traces of Iridium were noted in the impact area by later researchers. Greenland ice cores show a high level of Ammonium ions for 1908:

"Precipitation that fell on Greenland during the winter after Tunguska contains a strong, sharp spike in ammonium ions that can't be explained by

other sources such as wildfires sparked by the fiery explosion, says study coauthor Adrian Melott."

-- *Science News* (2010) comments on "Cometary airbursts and atmospheric chemistry: Tunguska and a candidate Younger Dryas event" by Adrian L. Melott, Brian C. Thomas, Gisela Dreschhoff, and Carey K. Johnson, in *Geology*, (2010).

Let's clear this up: There were no "wildfires sparked by the fiery explosion" -- only the scorching of dead branches and dry moss. The same repulsive force also hit the asteroid, likely shattering it, as I have suggested, and bringing the dust to incandescence. Then, as soon as the (more) negative polarity of the asteroid was sensed by the surface of the Earth, and the Earth's surface changed to a more positive induced voltage, there would have followed a thunderbolt between the Earth and the object in the sky.

In fact, there were dozens. This last act would probably further reduce the asteroid, or some portion of it, to microscopic dust. The dust is the result of the destruction of silicates in providing electrons to the thunderbolt. The electrons traveled to the Earth's surface during the thunderclap. The dust remained in the atmosphere. The dust was noticed in the night skies for the following few days, causing a reflection of light from the day side of Earth to the night side. Mount Wilson Observatory also noticed the dust -- star observations were obscured for months.

The dozens of thunderbolts were recalled as "a railway upon which dozens of trains are travelling at the same time" and "an exact likeness of artillery fire was heard: 50 to 60 salvos in short, equal intervals, which got progressively weaker." This is quoted from text presented further below. They stand out from the louder single detonations. Possibly new thunderbolts started up as the bolide traveled overhead. I do not know.

... the Chucchan brothers' testimony

What is still missing is the clear identification of a cathode or anode, although I have already hinted at these. Since no obvious gouging of soil was ever noticed at the strike point on Earth, it seems reasonable to conclude that Earth was the anode for this thunderbolt. The site was not inspected until 1921. There were reports by local hunters (who ought to know) of new depressions, holes, concavities, and changes of a bog to a lake, but these were mostly ignored by

later investigators, who were still looking for evidence of objects having fallen from above and entering the ground, and who spent time excavating the holes in a search of comet fragments. None were found. But the depressions and holes were a sure sign of the identity of the point of delivery -- the anode -- of massive lightning strikes between the ground and the atmosphere.

"... by 1928 when trained observers first visited the site, they found the impact site to be pockmarked with a series of shallow, funnel-shaped depressions of variable width but not more than four or five meters [12 to 15 feet] in depth. No meteorites were discovered."

-- W.K. Hartmann, *Moons and Planets* (1973).

Of the eyewitness reports many are contradictory, confusing, and apparently recall details out of order. But the following, a recollection by Stepan Chucchan and his brother Chekaren, from an interview by I. M. Suslov in 1926 (although not published until 1967), seems to recount the final moments of the asteroid with unusual clarity. Notice that it becomes clear that the object perhaps consisted of four separate pieces, which seem to have exploded separately (this idea has become orthodoxy in the establishment analysis, by the way). A survey of felled trees near the epicenter also suggested three or four separate explosions to later investigators, or, at least, additional surface explosions of unusual directivity. The Chucchan brothers were 20 miles (32 km) away from the epicenter, and apparently to the south or south by southeast.

*"Our hut stood on the banks of the Avarkitta. Before sunrise Chekaren and I arrived from the Dilyushmo creek, where we had stayed with Ivan and Akulina [Lyuchetkan]. We fell into a deep sleep. Suddenly we both woke up at once: someone had **jogged us awake**. We heard a whistle and felt a strong wind. Chekaren yelled to me 'Do you hear how many golden-eyes or mergansers are flying by?'"*

*"We were both still in the hut, you know, and we couldn't see what was going on in the forest. Suddenly someone **shoved me again**, so hard that I hit the hut's pole and then fell on the hot coals in the hearth. I got scared. Chekaren also got scared, caught hold of the pole. We began to yell father, mother, brother, but no one answered. Beyond the hut there was some sort of noise, we could hear how the tree-trunks were falling. Chekaren and I crawled out of our sleeping bags and already wanted to leap out of the hut,*

*but suddenly the thunder struck very strongly. That was the **first thunderclap.**"*

"Golden-eyes" and "mergansers" are ducks. The first instance of being "jogged" is likely a seismic shock (via the ground) due to the initial repulsive impact (longitudinal P-wave). The second instance, "shoved me again" would then likely be the secondary seismic waves (transverse S-wave), which travel slower than the initial (primary) waves. Both of these preceded the sound of the thunderclap since seismic waves travel faster via the ground than sound travels through the air.

Twenty miles (32 km) from the impact area, the sound of the thunderclap would have taken about 90 to 100 seconds (at approximately 0.2 mi/sec - 0.3 km/sec) to reach the Chucchan brothers, whereas movement of the ground, the "jogging" and "shoving," which preceded the thunderclap, would have arrived in about 5 seconds (at about 4 mi/sec - 6 km/sec). These seismic waves might have arrived somewhat sooner or later than I indicate here -- by half or twice the time, since the velocity depends on soil conditions, but still clearly separated from the thunderclaps.

What is amazing is that a thunderclap 20 miles away was heard as "very strongly." That is not a normal experience for hearing distant thunder. This "thunderclap" could be the sound accompanying a first thunderbolt, but more likely it represented the concussive impulse of the repulsive force between the asteroid and the ground. The order of events remains the same: the ground movement would have been felt long before the sound would have traveled the same distance through the air and would have been heard.

*"The ground began to twitch and pitch, a **strong wind slammed** into our hut and knocked it over. I was squeezed hard by the poles [boards], but my head was not covered because the roof had split [the roof was made of hides]. There I caught sight of a terrifying marvel: The tree-trunks are falling, their needles are burning, the dried ones on the ground are burning, the reindeer moss is burning. There's smoke all around, my eyes hurt, it's very hot, I could burn up."*

Possibly the "twitching and pitching" of the ground, which followed the earlier thunderclap, represented additional seismic activity. That would seem to be indicated by the fact that the trees, as the brothers reported, were falling around them at that time.

But the fact that this second set of seismic waves (if that is what it was) arrived very late -- after the initial thunderclap -- would indicate that this was perhaps not seismic, but local. I would also not associate it with the earlier thunderclap. Probably what was recorded as "movement of the ground," accompanied by a strong wind which "slammed into the hut" and toppled it, was the arrival of the compressive air burst which spread out from the center of the "impact" area and the tumultuous vibration of falling and uprooting trees.

*"Suddenly, above the mountain, where the forest had already fallen, something started to **shine intensely**, and, I tell you, it was as if a second sun had appeared; the Russians would have said 'something suddenly flashed unexpectedly'; it hurt my eyes, and I even closed them. It resembled that which the Russians call **lightning**. And immediately there were 'agdyllyan,' loud thunder. That was the **second thunderclap**. The morning was sunny, there were no thunderclouds; our sun shone brightly, as always, and here there appeared a second sun!"*

"The Russians would have said" is a cultural insertion by Chucchan, since the native Evenk and Tunga tribe members attribute thunder and lightning to spirits, not to natural forces. It also speaks to the authenticity of the interview texts.

"Started to shine intensely," shows that this was not lightning, but an arc mode plasma discharge. There have been suggestions that there were two bolides. If this is true, this would be the second bolide going to arc mode on traveling into the Earth's electric field.

Stepan Chucchan at this point states, "immediately there were loud thunder." It should be obvious that thunder would be delayed by over 90 seconds if the object in the sky was still twenty miles away, and the flashing light was a lightning strike.

The only conclusion I could reach is that this was indeed a second bolide suddenly brightening -- the second sun -- and the "immediate loud thunder" was the report of a repulsive electric field. The repulsive force would travel instantaneously and the clap would be experienced, as Chucchan states, almost immediately. This was not a thunderclap.

If it really were a thunderclap the sound arrived far too soon. This disconnection of sight and sound for these events is confusing.

*"With difficulty Chekaren and I crawled out from under the poles and the roof. After that we saw something flash above us, but already **in a different place**, and there was loud thunder. That was the **third thunderclap**. A wind flew at us, knocked us off our feet, struck against the fallen tree-trunks."*

*"We looked at the falling trees, we saw how their tops were broken, we looked at the fire. Suddenly, Chekaren yelled 'Look up!' and pointed. I looked there and there was **lightning** again, it flashed and struck again, made 'agdyllyan,' thunder. But the thump was a little less than before. That was the **fourth thunderclap**, like normal thunder." "Now I remember well that there was one more thunderclap, the **fifth**, but it was small and somewhere far away -- there where the sun sleeps at night [in the northwest]."*

Notice that the third, fourth, and fifth thunderclaps had moved further away, with the last (fifth) in the northwest, as would be expected if the asteroid (or parts of the asteroid) kept moving after being struck by lightning. These were not explosions in the normal sense. What the Chucchan brothers saw was lightning, although others (as quoted above) reported a blazing like fire, the formation of a black cloud, and flames shooting out of the cloud. The Chucchan brothers were in their hut when this happened.

If the order of these recollections is correct, then the initial "shoves" and the wind which followed with the Earth shaking, was a compressive impulse between the ground and the object in the sky. The following thunderclaps, accompanied by lightning, were likely lightning between Earth and the object. The heat of the initial compressive force would have ionized the air and released carbon soot into the air, setting up "ground zero" for an electric arc contact. The explosion of a second bolide remains as a good possibility.

The Chucchan brothers were not scorched by the heat of the shockwave of air which moved past them, and which toppled trees (and their shelter) because they were still inside their hut. A herd of 600 reindeer, belonging to the Dzhenkoul brothers, and located at about an equal distance from the epicenter, or somewhat closer, was not so lucky. Recalled from another interview:

"In that place the seven rich Dzhenkoul brothers in those days pastured a reindeer herd of 600-700 head. The brothers were rich. On that day, [my] father went to meet the reindeer on the Ilimpo [river] (in the north). The herd was pastured between the Kimchu river and the Polnoty (Churgim)

river. On the upper reaches of the Polnoty river there was a storehouse. There was a second storehouse at the mouth of the Cheko. There, where the first storehouse was (on the Polnoty-Churgim), there everything was burnt up. Of that storehouse there remained only ashes. The storehouse at the mouth of the Cheko was thrown over (carried away) by a whirlwind. At the headwaters of the Khushmo [river] their herd was burned, the reindeer were burnt up, only ashes remained. At the mouth of the Cheko, the reindeer lay curled up, but they didn't burn (they had been stunned and they died)."

-- L. V. Dzhenkoul, interviewed by G. P. Kolobkova, 1960, recollections of his father.

... various opinions

To begin with, an exposition from the establishment:

"The meteorite did not strike the ground or make a crater, early researchers thought the object might be a weak, icy fragment of a comet, which vaporized explosively in the air, and left no residue on the ground."

"However, modern planetary scientists have much better tools for understanding meteorite explosion in the atmosphere. As a meteorite slams into the atmosphere at speeds around 12 to 20 km/sec [25,000 to 50,000 miles per hour] or more, it experiences a strong mechanical shock, like a diver belly-flopping into water."

OK, give me a break.

"This can break apart stones of a certain size range, which explode instead of hitting the ground. Some of them drop brick-sized fragments on the ground, but others, such as the one that hit Siberia, may produce primarily a fireball and cloud of fine dust and tiny fragments."

"In 1993 researchers Chris Chyba, Paul Thomas, and Kevin Zahnle studied the Siberian explosion and concluded it was of this type -- a stone meteorite that exploded in the atmosphere. This conclusion was supported when Russian researchers found tiny stony particles embedded in the trees at the collision site, matching the composition of common stone meteorites."

-- "The 1908 Tunguska Explosion: Atmospheric Disruption of a Stony Meteorite" *Earth Science Australia* (Internet)

Let me suggest that "modern planetary scientists" do not have "much better tools for understanding". **They have nothing; they have absolutely nothing, to base any of their scientific opinions on** and they certainly do not have even one iota of understanding. They **are as clueless**, and continue to be so, as the Evenk and Tunga reindeer herders who swore that the Iron Spirit Birds (the Agdy) of the Storm God were at fault. The modern planetary scientists are spouting absolute nonsense in an effort to sound like they have been talking to *their* God.

Other sources relate, about the "stony particles":

"A 1961 expedition recovered soil samples that contained small spherules believed to be part of the object. The spherules would be consistent with the idea of an admixture of small grains of non-icy 'dirt' in the dirty iceberg [a 'comet'] and their spherical shape could be the result of sudden melting during the explosion."

-- Hartmann

Here we see the Tunguska object depicted by "modern planetary scientists" alternately as an icy comet, as a rocky asteroid, or as a snowball with spherical inclusions of "dirt." [\[note 6\]](#)

As Wal Thornhill has noted in his writing (<http://www.holoscience.com> (2004)), describing some other published explanation of comets:

"The ingenuity of such nonsense is breathtaking."

Significantly, Bob Kobres (of all people!), who is well known for advocating claims that all catastrophes in history are related to falling meteors, wrote the following in an essay titled "The case of carbonaceous catastrophes":

"... sometimes the weight of opinion is tilted by the scale of an assumed phenomenon. Remember that every aspect of this event is being retrocalculated; the mass and velocity of the unmeasured object can thus be diddled to account for the gauged destruction!"

"So, if there was a release of energy beyond what was produced kinetically, its contribution to the damage could well be absorbed by postulating a

more massive object or higher encounter velocity."

-- <http://abob.libs.uga.edu/bobk/caseof.html>

This is an astute observation, which has also been voiced by Russian researchers.

As I earlier proposed, it was a rock. But what establishment scientists entirely misread is that this rock exploded electrically -- it vaporized (or at least broke up) because of the violent fragmentation which ripped apart the lattice of the silicates in order to gain electrons for delivery as a series of thunderbolts in a contact with Earth. The Tunguska "explosion" was the delivery of a massive electric field repulsive shock, followed by a series of lightning strikes from Earth.

The whole concept of a massive repulsive electric field force is totally foreign to consensus thinking, as it is to most catastrophists. And that the Earth would protect itself by launching a lightning bolt at the intruding object is just as unthinkable. But consideration of the physical consequences of this event argues against simplistic and completely mechanical effects.

N.V. Vasilyev made note of the peculiarities of the fallen trees without being able to clear up the enigma. He writes:

"The vector structures of the forest falling on hill-sides facing the epicenter and the opposite ones are essentially different, which is in poor agreement with the assumption of the center of generation of the blast wave located high above the earth."

"Thus, the conclusion suggests itself that along with great energy release 5.5 to 8 km above the earth, there were a number of low-altitude (maybe even right above the surface) explosions that contributed to the total picture of destruction. This seems to be sustained by other data concerning in particular the configuration of the zones of dead trees ('poles') in the central part of the area of the catastrophe and deposition of aerosols immediately after the explosion."

-- <http://omzg.ssc.ru/TUNGUSKA/en/articlese/vasilyeve.html>

This terse transliteration from the Russian may require a few additional words. What Vasilyev is saying here is that the pattern of downed trees, and the ones

which were left standing at the epicenter (the "poles") and on the lee side of hills, cannot be the simple result of a point source explosion 5 or 8 km above the ground. He suggests therefore that there must have been other explosions at ground level. (Others have repeatedly noted this also.)

Of course this is exactly what I have here proposed. Certainly there was a down-directed force from the object 5 or 10 km up in the sky. The downward force would have been at right angle to the surface, for it would have been due to the electric field. But this force was of such an enormous compressive magnitude that the air heated up by thousands of degrees and needed to expand sideways along the ground, and in all directions away from the center.

It was this horizontal force, parallel to the ground, that snapped trees for 15 to 20 miles (30 km) in all directions. Low areas were protected where some trees were left standing, for the shock wave passed over them. The expanding air must additionally have moved chaotically, reshaping its path in meeting minor obstructions, like trees and hillocks.

Yet, despite the addition of an explosion at ground level as required by Vasilyev, the trees did not burn. They were only superficially singed. The trees were saved by the same rapidly expanding front of superheated air at ground level which initially set their dead branches and needles on fire. The explosively expanding mass of air left a vacuum in its wake which extinguished the flames of the burning trees immediately, especially near the center where the highest temperatures would have been experienced.

... duration estimates

Vasilyev sums up the recollection of the Chucchan brothers, recorded by I.M. Suslov, and quoted earlier, as follows:

"There were five explosions, the second seeming to have been the most powerful. Light flashes followed at an interval of a few seconds and were seen at different spots of the sky. The last, fifth explosion, took place far in the north, somewhere near the Taymura river. Trees began to fall and the fire began after the first explosion, while the Evenks [their tribal name] were in their huts, the latter being thrown down."

"The data communicated by I.M. Suslov are quite detailed and enable the whole phenomenon to be estimated as lasting no less than 20-25 seconds."

Perhaps in "lasting no less" we have a Russian idiom for expressing the fact that the whole incident took very little time. But as I have pointed out, the sound of an explosion 20 miles away would not be heard for 90 to 100 seconds. That is the minimum expanse of time. And the explosions repeated five times, certainly separated long enough from each other so that the Chucchan brothers could recount the lightning and thunderclaps as distinctly separate events. The thunderclaps might indeed have followed at close intervals, but I suspect they arrived at notable intervals. Otherwise the sequence of thunderclaps, lightning, and the blazing object would not have been remembered so distinctly and specifically.

What the synopsis by Vasilyev points up is the wide range of readings which have been extracted and presented as facts for the Tunguska event. Vasilyev, in following the mainstream understanding of the event, needed to have the explosions in the sky happen in rapid sequence -- "light flashes followed at an interval of a few seconds" -- in order to conform to the notion of an "exploding comet." If an exploding comet were to detonate five times at 60 second intervals (thus taking 5 minutes) it would not have made any physical sense -- especially if this had to be understood in terms of a compressive shockwave encountered by an object falling in the Earth's atmosphere.

E.M. Drobyshovski, in "Tunguska-1908 and similar events in light of the New Explosive Cosmogony of minor bodies" (arXiv.org, 2009), insists that the sounds were heard much earlier than they would if traveling at the speed of sound in air. To quote from his text:

"One cannot exclude also multiple reflections of sound from clouds, the waveguide atmospheric effects and so on."

All the eyewitness accounts, however, insist that it was a completely cloudless sky. Drobyshovski posits a "waveguide" phenomenon, caused by a "stratified morning atmosphere" due to "morning-time warming of the ground-level air mass." To quote all of his footnote 1:

"Interestingly, the more emotional perception of phenomena (primarily of sounds) by the western eyewitnesses (on the Angara river) compared with those located to the east (upstream of the Lower Tunguska river) can be assigned to the well-known waveguide acoustic effects in the stably stratified morning atmosphere; indeed, the difference in local time between these regions is 30'- 50' [30 to 50 minutes], a noticeable headway for morning-time warming of the ground-level air mass in the east."

It is in Drobyshevski's interest to suggest a very close spacing of the thunderclaps, for it would also support a theory of the aerial detonation of a bolide. I don't think Drobyshevski knows what a waveguide is, but more important, on June 30 at 61 degrees north latitude the Sun rose at 2:30 AM (local Mean Time). It wasn't morning anymore by a long shot. The bolide struck at 7:30 AM local time. The Sun had been up for 5 hours; the Sun was already 30 degrees up from the horizon. Where does Drobyshevski live?

Perhaps by "waveguide" is meant the atmospheric reflection of massively loud sounds, such as volcanic eruptions. In AD 1883 the Krakatoa volcanic explosion was heard four thousand miles (6000 km) away. This bending and the further reflection of sound waves is not the mechanism which would shorten a series of local thunderclaps for Drobyshevski.

Also suggested by others, all in an effort to bring all of the detonations together within a very short time span, is the notion of electrophonic sound, as, for example, N.V. Vasilyev in "the Tunguska Event" (<http://omzg.sssc.ru/>). This is explained as:

"... sounds produced by direct conversion of electromagnetic radiation into audible sound. In the case of meteor-related electrophonic sounds, they are heard simultaneously with the appearance of a bright meteor."

This is true for bolides exploding (destructively fracturing) above the atmosphere, and has been reported before. This is, in fact, the propagation of the electric field -- the repulsive shock mentioned above. It does not require air as a medium; the sound is a local compression of the air, and the effect is instantaneous. But to counter Vasilyev, let's now look at some of the reports of eyewitnesses. From the *Sibir* newspaper:

"The sky was cloudless, only a small dark cloud was observed in the general direction of the bright body. It was hot and dry. As the body neared the ground (forest), the bright body seemed to smudge, and then turned into a giant billow of black smoke, and a loud knocking (not thunder) was heard, as if large stones were falling, or artillery was fired. All buildings shook."

"The author of these lines was meantime in the forest about 6 verst [about four miles] north of Kirensk, and heard to the northeast some kind of artillery barrage, that repeated in intervals of 15 minutes at least 10 times."

This text was mistranslated. It was meant to read "ten times in an interval of 15 minutes," rather than ten times 15 minutes (150 minutes). I have another translation which reads, "Ten times over the course of 15 minutes." The *Krasnoyaretz* newspaper reported:

"Kezhemskoe village. On the 17th [on the old Russian calendar] an unusual atmospheric event was observed. At 7:43 the noise akin to a strong wind was heard. Immediately afterwards a horrific thump sounded, followed by an earthquake which literally shook the buildings, as if they were hit by a large log or a heavy rock. The first thump was followed by a second, and then a third. Then the interval between the first and the third thumps were accompanied by an unusual underground rattle, similar to a railway upon which dozens of trains are travelling at the same time. Afterwards for 5 to 6 minutes an exact likeness of artillery fire was heard: 50 to 60 salvos in short, equal intervals, which got progressively weaker. After 1.5 - 2 minutes after one of the 'barrages' six more thumps were heard, like cannon firing, but individual, loud and accompanied by tremors."

If we add up the time intervals as reported above, we have perhaps 10 or 30 seconds for the first three thumps, 5 or 6 minutes of "artillery fire," then 1.5 minutes later "canon firing." The last two were reported by the *Sibir* newspaper as artillery barrage, that repeated ten times in an interval of 15 minutes. Even with large-scale observational errors, the minimum interval seems to be 6.5 to 7 minutes, the maximum is 15 minutes.

There is more. There are confusing eyewitness accounts, confusion in the direction the bolide moved, and even on the time of day (2 or 3 pm, above). As N.V. Vasilyev noted:

"The total combination of evidence given by 'eye-witnesses of the Tunguska fall' contains in fact information on at least two (most likely more) large daytime bolides."

... mainstream opinions

Only a few scientists are willing to voice different opinions, mostly expressed as caveats. Boris F. Bidyukov, a Russian scientist, writing in "Radioactivity Paradox: Thermo-Luminescent Method" at *Tunguska Phenomenon: 90 Years of Investigations, Conference* (1999?), states:

"The efforts of researchers of the Tunguska problem are being concentrated on solving the problems connected with the necessity to remove the contradictions resulting from a number of paradoxes. Each of the paradoxes contains some logic contradiction reflecting, as a matter of fact, the state of researches at the moment."

-- <http://omzg.sssc.ru/TUNGUSKA/en/newse/abstracts/bidyuk2.htm>

Consensus opinion, as expressed by Wikipedia, commenting on the "asteroid hypothesis," sums up the set thinking:

"The chief difficulty in the asteroid hypothesis is that a stony object should have produced a large crater where it struck the ground, but no such crater has been found. It has been hypothesized that the passage of the asteroid through the atmosphere caused pressures and temperatures to build up to a point where the asteroid abruptly disintegrated in a huge explosion. The destruction would have to have been so complete that no remnants of substantial size survived, and the material scattered into the upper atmosphere during the explosion would have caused the skyglows."

-- en.wikipedia.org/wiki/Tunguska_event

I doubt almost all of this, especially since it contradicts the eyewitness reports. But the main problem here is that all of this is fantasy -- the buildup of pressures, the abrupt disintegration, the huge explosion. There simply is no such thing as a buildup of pressures and temperatures. All of this happened, don't forget, far above the atmosphere, in a vacuum where there would be no buildup of pressure or temperature.

Within the Earth's atmosphere the pressure wave (as with the temperature) is represented by a thin layer of air which precedes the falling object, but never engulfs it. That defines a shockwave. A shockwave travels with an object, it does not bump into it. There would be heat transmitted to the bottom of the supposed iceball, but ice or snow is a very poor conductor of heat (compared to the aluminum shell of a space craft on re-entry).

The Tunguska event entailed a rather simple sequence of events -- as best we can reconstruct from the physical evidence, the verbal reports, common sense, and access to electrical theories. Despite blowing down sixty million trees, the Tunguska event is not a good analog model for meteor impacts.

There are very large meteorites which have done no electric field damage to themselves. The 130,000 pound Hoba iron meteorite in Namibia, Africa, seems to have landed without even making a crater. The iron Willamette Meteorite, although both ancient and not found in situ, weighs 32,000 pounds -- as much as the semi which hauled it away. All recent meteor falls have been recovered. Most are small asteroids, the size of rocks or pebbles which could be held in the hand.

[The following image and paragraph is repeated from Chapter 2:]



[Image: Carancas, Peru, crater. After Michael Farmer.]

"The September 15, 2007, impact in Carancas, Peru, resulting in a 45 foot diameter crater, was caused by a chondrite (stony) meteorite 10 feet in diameter. In theory, it should have delivered as much energy as an atomic bomb with an explosive energy of 15-kiloton equivalent of TNT -- enough to destroy New York City -- but there was only smoke and steaming groundwater. People walked over from nearby to have a look."

I have here presented the details of the Tunguska event, including the mainstream interpretation, because this information will be used as an analogy by many people who style themselves researchers, including Richard Firestone,

et alii, in an article in 2007, for an "impact" and "airblast" at the beginning of the Younger Dryas. The analogy is incorrect, both in scope (I believe) and certainly in the application of the mechanics of a volatile "comet" of watery composition exploding in the atmosphere. But, of course, to stay within the limits of establishment consensus science, the researchers have no recourse except to use these stock fairytales. I'll discuss this in the next chapter.

The Explosion at Chicxulub



[Image: Yucatan crater, after NASA, N. Short, rst.gsfc.nasa.gov/Sect18/]

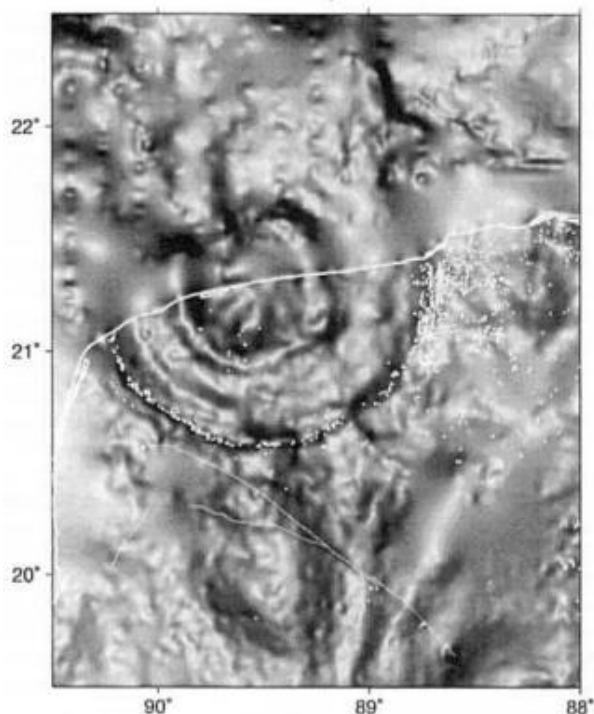
I am including information on the Chicxulub crater and the Grand Canyon (below) to give some idea of the scope of things. Chicxulub has long been held to be caused by an extra-terrestrial object, although (popularly) as an "impact crater" rather than the location of the anode in an extra-terrestrial thunderbolt. Chicxulub was also discussed in a previous chapter.

There are "impact craters" on Earth; but only about 200 have been identified, and only a few are genuine impact craters. The Moon, Mars, and Mercury, on the other hand, are littered with thousands on thousands of craters. Almost all of them are circular, like the Chicxulub crater, and are the marks of electric arc

contacts, which will always touch down perpendicular to a planet's surface. But the Moon, Mars, and Mercury have no atmosphere to absorb and limit the lightning strikes.

For the Chicxulub crater we have some estimates of the energy of detonation. For the Grand Canyon I found no such estimate. But the Grand Canyon is not recognized today as having extra-terrestrial causes, despite the fact that it certainly looks like the mark of a cathode electric arc strike.

A darkness of 1500 years -- or 1000 years as the least estimates for the Younger Dryas -- is a long time. But then, compared to a local nuclear war with an explosive effect of one hundred 15-kiloton nuclear bombs, which would conservatively cause 10 years of shadow, cold, and drought, the electric field explosion at the beginning of the Younger Dryas must have represented the effect of millions or billions of nuclear bombs. The 110-mile (175-km) diameter Chicxulub "impact crater" has been estimated to represent the explosive effect of 100,000,000 megatons (10×10^8 megatons) of TNT (Wikipedia), equivalent to 6,000,000,000 atomic bombs. I will compare this to the "event" at the start of the Younger Dryas, further below. [\[note 7\]](#)



*[Image: Chicxulub below-ground crater. The small dots are cenotes (sink holes).
After Alan Hildebrand, Glen Penfield, PEMEX.]*

About Chicxulub, Wikipedia states:

"The impact would have caused some of the largest megatsunamis in Earth's history, reaching thousands of feet high."

"A cloud of super-heated dust, ash and steam would have spread from the crater, as the impactor burrowed underground in less than a second. Excavated material along with pieces of the impactor, ejected out of the atmosphere by the blast, would have been heated to incandescence upon re-entry, broiling the Earth's surface and possibly igniting global wildfires; meanwhile, enormous shock waves spawned global earthquakes and volcanic eruptions."

"The emission of dust and particles could have covered the entire surface of the Earth for several years, possibly a decade, creating a harsh environment for living things to survive in. The shock production of carbon dioxide caused by the destruction of carbonate rocks would have led to a sudden greenhouse effect. Over a longer period of time, sunlight would have been blocked from reaching the surface of the earth by the dust particles in the atmosphere, cooling the surface dramatically."

The aspects of "global earthquakes and volcanic eruptions" relate to a compressive impulse at an unknown location, directly before the thunderbolt. But there is something to be said for the dust, although this too would likely be due to the compressive forces, rather than the arc, and is rather severely downplayed here. Soot from forest fires would have been lofted into the stratosphere to block sunlight, for much longer than "several years, possibly a decade" -- probably for thousands of years. This was certainly not a "greenhouse" condition.

Sean Carroll, in *Remarkable Creatures* (2009), a book on natural history, writes the following imaginative scenario in describing the Chicxulub crater in the Yucatan. It is but one sample from thousands of science writers. Carroll is a molecular biologist.

"The asteroid crossed the atmosphere in about one second, heating the air in front of it to several times the temperature of the sun."

And that is only the first sentence.

The asteroid here is coming in from directly above, perhaps so that it can make a circular hole in the ground. That is actually hard to do. The air in front of the asteroid does not heat up to "several times the temperature of the sun." The shock front temperature is not easily described from theoretical considerations, or even amenable to thermodynamic modeling. However, there is a rule-of-thumb that holds that the temperature in Kelvin can be numerically approximated by the entry speed in meters per second. As I will develop in more detail later, entry temperatures of spacecraft or bolides may rise to 7,000 Kelvin or could perhaps be as high as 70,000 Kelvin. The lower temperature is only slightly higher than the surface of the Sun (5600 Kelvin). The higher temperature is only a small fraction of the temperature of the Sun's chromosphere, which experiences temperatures of 2,000,000 Kelvin.

So where does this statement come from? I suspect it was copied from all the other literature which attempts descriptions of the Chicxulub crater. Have any of the hundreds of science writers ever checked the sanity of this, or have they all forgotten high-school physics? Here the imagination has completely overwhelmed common sense. The sense of enormity is there, but the physics is absent.

What Carroll actually meant to do here is to give us a measure of the kinetic energy dissipated on impact, some of which might result in very high temperatures, although of very short duration. At least, that is what is assumed, since no evidence of an impacting object has ever been found, suggesting that it vaporized, as for example at the 3/4-mile (1.2-km) diameter Barrington Crater in Arizona (today called "Meteor Crater").

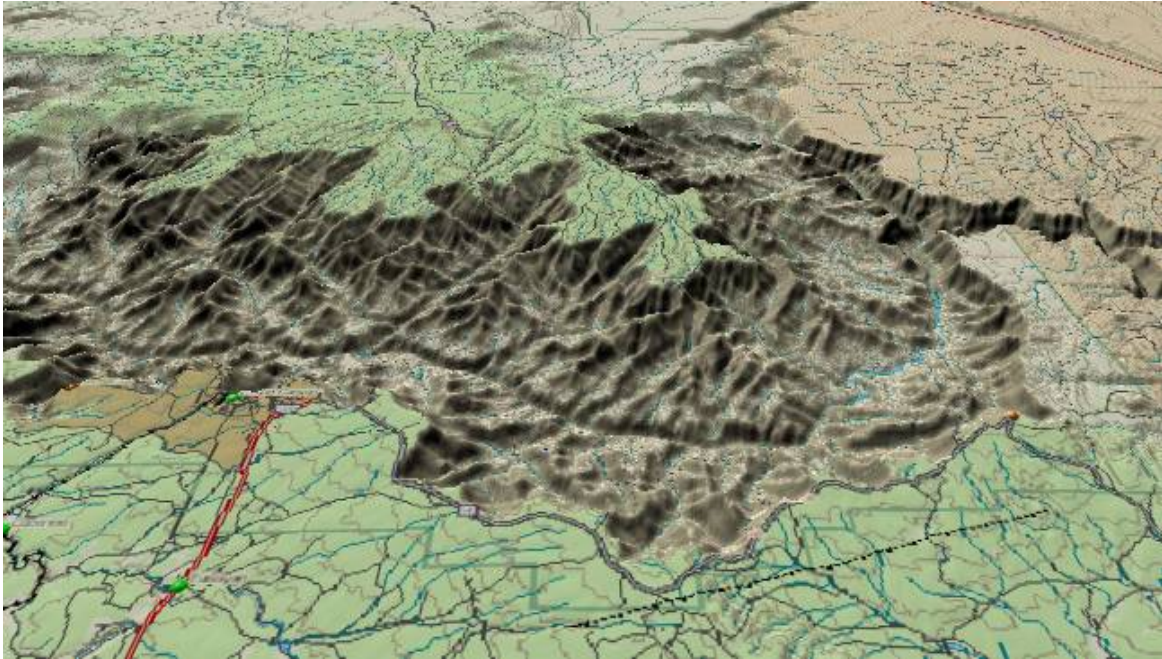
That is not to say that there could not be some overwhelming impacts, since the kinetic energy increases linearly with the mass of the bolide. But calculating backward from craters where no meteorite was found and then assuming it vaporized, will only lead to seeding parameters of formulas which have no claim to reality. These calculations will determine the energy needed to turn a rock into a gas. Notice that here the energy is the result of an impact, not due to a "shock wave" hitting an iceball. Carroll continues:

"On impact, the asteroid vaporized, an enormous fireball erupted into space, and rock particles were launched as far as halfway to the moon. ... Farther away, matter ejected into space fell back to the earth at high speeds -- like trillions of meteors -- heated up on reentry, and ignited forest fires across continents."

He then points up the darkness which would result, but like everyone else, the effect is minimized: "The debris and soot in the atmosphere blocked the sun, and the darkness may have lasted for months." How can a period of months account for the demise of every creature larger than a few hundred pounds? The thinking about blocking sunlight is of course influenced by the only slim facts at hand: the climatic effect after the 1883 eruption of Krakatau in Indonesia. The skies darkened worldwide for a few years (Wikipedia), yet the Krakatau eruption represented only the smallest fraction of the Chicxulub impact. As noted above, Bobcock and Toon have pointed out that volcanic eruptions produce sulfate clouds which enter and remain in the upper atmosphere for some time, but do not rise into the stratosphere. Recent estimates of the time it took for the deposition of the K/T boundary layer, based on Helium-3 content, suggest 10,000 years. That is, it took about 10,000 years for the dust, soot, and atomic products cast up into the atmosphere and stratosphere to settle out -- not "a few months."

As I have pointed out in a previous chapter, despite the consensus opinion that the Chicxulub "crater" was caused by a meteor, I will hold that this and a number of related contacts (at the same time) were electrical. The Chicxulub crater, with its smaller peripheral depressions, the cenotes, represents the Earth as the anode of an absolutely massive thunderbolt. There are exact models of this, complete with on-edge perforations, on the Moon.

The Scar of the Grand Canyon



*[Image: East end of the Grand Canyon of Arizona.
Modified from Google Maps.]*

I have included a few images of the Grand Canyon. These will perhaps convince the reader of the magnitude of the scar of the Grand Canyon, and the forces which might have created it. In the text further below I have some estimates of the energy involved.

We have no clear creation date for the Grand Canyon, only from adjacent lava flows some estimates of about 600,000 years ago -- at the latest. I initially thought that the Grand Canyon might represent the location of an arc following the compressive slam over the Laurentide Ice Sheet, but the dates and other facts cannot be matched.

"... geologists are divided into two warring camps. They both agree that the Grand Canyon is young, geologically speaking. The evidence has been building since the 1930's and 1940's that the Colorado river did not flow out of the Canyon nor across the ridges and valleys of Nevada/California before 5.5 million years ago."

"The first camp thinks that a proto-canyon completed most of the excavation of the Canyon first. Later, the Colorado river flowed into this pre-existing proto-canyon. The second camp says evidence for a proto-canyon is inadequate, and the whole canyon was carved quickly."

-- Amy Acheson "Grand Canyon Revisited" (*Thoth VII*, 2003)

Both Juergens and Thornhill have suggested the Grand Canyon is the scar of a massive lightning strike, where Earth was the cathode (thus Earth was the source of electrons). Much of the damage, Thornhill notes, was probably a below ground lightning response to the initial contact. A very equivalent scar on Mars, the Valles Marineris, is nearly 3000 miles long (4800 km), ten times the size of the Grand Canyon. But Mars had no atmosphere. The Earth's atmosphere would moderate an approaching thunderbolt despite the fact that this came from another planet. If it came from Saturn, the thunderbolt came from a planet 10 times the diameter of Earth and with a mass 300 times that of Earth.

On the basis of suggestions for the excavation time for the Valles Marineris (by others), I would suggest that the Grand Canyon was excavated and the material lofted up in less than 10 minutes. The thunderclaps would have echoed around Earth a number of times. The ground at the eastern end swelled and raised up, as is typical of cathode marks and can be identified as the point of initiation of the strike, making it look today as if the Colorado river flowed uphill in carving out the depression.

The Grand Canyon was the result of a cathode electric arc strike. The lightning at the start of the Younger Dryas was a series of anode strikes, actually much larger than the 220-mile (350-km) scar at the Grand Canyon and much more contained.



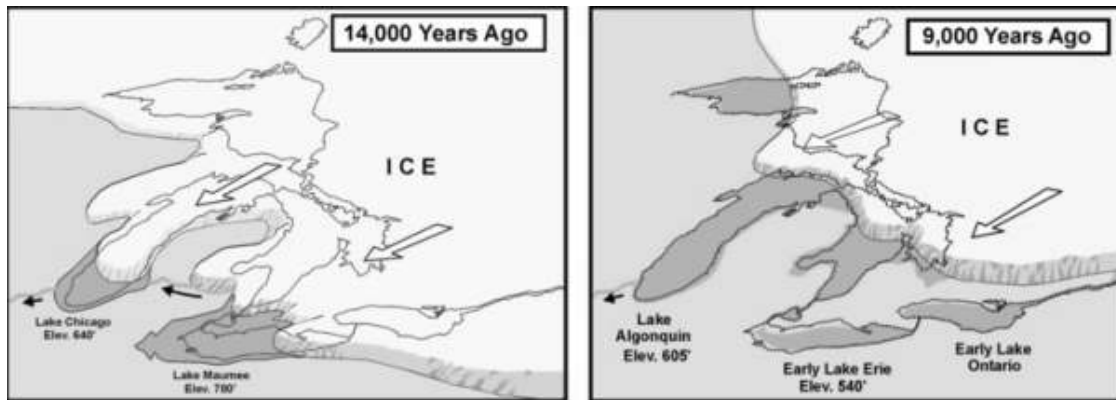
[Image: Grand Canyon. Courtesy of Bob Ribokas, kaibab.org.]

Where did all the excavated material go? Some probably fell back to Earth. Much of that fell away from the Canyon, as it similarly has on Mars, for it would be ionized and electrically repelled from the location of the electric arc contact. I suspect that much was simply turned to dust and is indistinguishable today from desert sands. If we go on the basis of information which I will present later, we could expect trajectories on the order of 500 to 1000 miles (1600 km) for the removed soils. An enormous amount of dust would have entered the atmosphere, initially causing endless rains -- rains like those which the *Popol Vuh* claims dissolved the first generation of humans, the mud people. But the rains of the *Popol Vuh* date to the start of the Younger Dryas. There were no humans of our sorts 600,000 years ago, the youngest date for the Grand Canyon.

Ionized silicates and fine dust in the Earth's atmosphere might have formed the initial portion of the conducting conduit for a return lightning stroke directed at Saturn or Mars. One wonders also if this strike (or any previous ones) caused the equatorial rings of the Earth. Certainly a massive amount of nanometer particulates ended up in the stratosphere, matter not just from the pulverization of rock due to the lightning strike, but especially from attendant fires. Such fires are recognized today by mainstream scientists, as in the recent journal papers of Richard Firestone, et alii, on the effects of a possible meteor detonation over the

Canadian Laurentide Ice Sheet in circa 10,900 BC, that is, at the start of the Younger Dryas.

The Great Lakes detonation



[Image: The Great Lakes shown as puddles at the edge of the melting Laurentide Ice Sheet; 12,000 BC and 7,000 BC. After U.S. Army Corps of Engineers.]

The tale of the cometary explosion over the Laurentide Ice Sheet in 10,900 BC started with a report on the production (in antiquity) of odd nuclear atomic particles in the state of Michigan. This was detailed in a 2001 article by Richard Firestone and William Topping, "Terrestrial Evidence of a Nuclear Catastrophe in Paleoindian Times" (*Mammoth Trumpet Magazine*, 2001). The introduction reads [reparaphrased, abbreviations expanded]:

"Our research indicates that the entire Great Lakes region (and beyond) was subjected to particle bombardment and a catastrophic nuclear irradiation that produced secondary thermal neutrons from cosmic ray interactions."

"The neutrons produced unusually large quantities of Plutonium-239 and substantially altered the natural uranium abundance ratios (Uranium-235 / Uranium-238) in artifacts and in other exposed materials including cherts, sediments, and the entire landscape. These neutrons necessarily transmuted residual nitrogen (Nitrogen-14) in the dated charcoals to radio-carbon [Carbon-14], thus explaining anomalous dates."

Firestone and Topping reported on dates from the Great Lakes region (Michigan, Illinois, Indiana, and lower Ontario), plus two sites in New York and

Pennsylvania, a site in New Mexico, and one site northwest of Hudson Bay. They noted that the dates are inconsistent with much earlier dates of 32,000 BC in South America, which have become accepted since 1990. They write:

"... at the Gainey site in Michigan a 2880 bp radio-carbon [Carbon-14] date was reported, while the thermoluminescence date for that site is 12,400 years before the present. Other anomalous dates found at Leavitt in Michigan, Zander and Thedford in Ontario, Potts in New York, Alton in Indiana, and Grant Lake in Nunavut [northwest of Hudson Bay] are summarized in Table 1 [not shown here]."

"The Grant Lake Paleoindian site is most remarkable because its 160 radio-carbon years before the present age is nearly contemporary, while adjacent and deeper samples give ages of 1480 - 3620 radio-carbon years before the present."

After considerable details on Uranium 235/238 ratios, Plutonium, particle tracks in tool-grade chert (Clovis spearpoints), and excess Carbon-14 (levels above the present) -- all claimed to be due to an influx of neutrons from outer space -- the authors conclude that radio-carbon dates for the sites in Michigan, and by extension elsewhere, should be moved far into the past. That is a rather amazing and sudden backtracking for archaeology in the U.S.A.

"The 39,000 years before the present date proposed for the Gainey site is consistent with the prevailing opinion among many archaeologists about when the Americas were populated. It is also commensurate with dates for South American sites and with a Mousterian toolkit tradition that many see as the Paleoindian precursor. ... Since the Lewisville and Meadowcroft sites were likely exposed at the same time to thermal neutrons, we estimate that their dates should be reset to about 55,000 years before the present and about 45,000 years before the present, respectively."

Wow! This is a dramatic redefinition of the Indian occupation of America, something which had long been held to 12,000 BC by the North American (U.S.) archaeological community. But there is more.

The authors next suggest a "cosmic ray bombardment" from a supernova as the cause for the influx of particles and the altered radioisotopes (plus excess isotopes or elements of Beryllium, Calcium, and Magnesium in the Greenland ice cores for 11,000 BC). "Cosmic rays" are primarily high-energy protons.

"The geographical distribution of particle tracks, Uranium-235 depletion, and Plutonium-239 concentration ... are quite consistent, although the particle tracks seem to be confined to a smaller geographic area. They indicate energy released over the northeastern sector of the U.S., with maximum energy at about 43° N, 85° W, the [Lower] Michigan area of the Great Lakes region."

This last would seem to indicate a very focused source of a limited diameter, even though any "cosmic ray bombardment" from afar (as suggested by the authors) would, in fact, cover a much larger circular sector of Earth before the impinging rays were no longer near vertical -- probably 25 to 30 degrees of the circumference of Earth, an area with a diameter of 2000 miles (3000 km). This is a very strange discrepancy: the external "nova event" would cover a very wide area, while the actual data is found primarily in an area of a very limited diameter -- less than 200 miles (300 km).

To resolve this, that is, the fact that "particle tracks seem to be confined to a smaller geographic area," the authors imagine an additional local aerial explosion above the "smaller geographic area" -- in fact, above Lower Michigan. This becomes and remains the second causal conditions for the Younger Dryas event, the first being the incoming radiation from a supernova. There is just no other solution but to suggest two different distribution systems. This is, of course, exactly what the electrical cause for the event will also claim, but for clear reasons.

The authors conclude with a recounting of the "devastating effect on Earth," in particular the continent-wide effects, writing:

"The enormous energy released by the catastrophe at 12,500 years before the present could have heated the atmosphere to over 1000 degrees Centigrade over Michigan, and the neutron flux at more northern locations would have melted considerable glacial ice. Radiation effects on plants and animals exposed to the cosmic rays would have been lethal, comparable to being irradiated in a 5-megawatt reactor more than 100 seconds."

Then there follows a comment which is very interesting. It is known that grain cultivation was started worldwide in about 9000 BC, at the end of the Younger Dryas, when the climate improved again. The sudden appearance of maize is noted in the Maya *Popol Vuh* also.

"Massive radiation would be expected to cause major mutations in plant life. Maize probably evolved by macro-mutation at that time, and plant domestication of possibly mutated forms appears worldwide after the Late Glacial period. For example, there was a rapid transition from wild to domesticated grains in the Near East after the catastrophe."

The date for the first appearance of maize is about correct. It shows up in about 8000 BC in Central America. The authors also suggest that the history of the retreat of the Laurentide Ice Sheet, which had already experienced 2000 years of warm weather, should be revised:

"The modified dates for Paleoindian settlements suggest that the timetable for glacial advance sequences, strongly driven by conventional radio-carbon dates, should be revisited in light of the evidence presented here of much older occupations than previously thought."

This position will be modified later. In the paper of 2007, it serves the authors (plus 23 additional authors) better to leave much of the Laurentide Ice Sheet intact -- as a landing site for a comet or comets, and in order to shove ice into the North Atlantic and initiate a thousand years of cooling.

Before leaving this topic, I should present a selection from a statement by Topping, addressing criticism ("comments") aimed at the original article in the *Mammoth Trumpet Magazine* quoted above:

"Since the inception of the investigation, the Principal Investigator [William Topping] has regarded a 'solar flare' as direct cause for the clear pattern at about 12,500 years before the present as recorded in ice and marine data, Paleo-Indian radio-carbon dates/artifacts and associated extinctions and mutations, and also sediments at depth, simply because the overall pattern suggests an 'event' of less than about 24 hours duration with primary observable effects consistent with the rotation of the earth in respect to the sun."

But he admits that Firestone's thesis may also be correct:

"Firestone may be correct in hypothesizing a supernova, and there are other possibilities as well."

It is, of course, the "other possibilities" which I am proposing here -- that the whole of the altered isotopes could be caused directly by a series of absolutely

stupendous lightning strikes following the initial compressive impulse. And more. The bolts should have done damage far in excess to what is seen today at the 240-mile-long (380-km-long) gouge of the Grand Canyon.

I should also note that his suggestion of effects "consistent with the rotation of the earth in respect to the sun" do not add up, neither for the authors nor for me. For the researchers, whatever happened over Hudson Bay, should have been followed by effects further west. But instead, it looks like there were almost simultaneous "explosions" over the Great Lakes. In actuality even less of it makes sense when the Carolina Bays on the Atlantic coast are factored in -- a topic I will cover in a following chapter.

In my sequence of events, the site of activity first moved south and east to Lake Ontario -- thus seemingly against the direction of the rotation of the Earth. This can be done if it is admitted that when the Earth was slammed near the time of the spring equinox, the Earth's rotational axis would be pointed in the trailing direction of the Earth's orbit. Tilting the axis away from the source of the impact would move the perpendicular direction to the exterior planet directly southeast to Lake Ontario.

The effect would be to have the Great Lakes move eastward by about a half time zone. The resulting gyroscopic reaction torque would then move the remainder of the Great Lakes toward the east also at considerably more speed than the normal rotation of the Earth would accomplish.

Endnotes

Note 1 --

The Younger Dryas affected different areas of the world unequally and out of sync. South America cooled far too early to match the supposed influx of meltwaters from the North American glacier into the North Atlantic, which today is held as the cause for the cooling in Northern Europe. The Arctic and far southern region of South America were less affected, as also the tropics. This suggests that the darkness was climatically distributed over the Earth.

In fact, the "disruption of the Gulf Stream," due to the supposed influx of North American meltwaters, is today dated to about 6200 BC, and lasted a thousand years, thus to 5200 BC. These dates are well after the end of the Younger Dryas. The disruption of the Gulf Stream probably represents a tidal system rotating

around Earth in the North Atlantic and North Pacific as Earth drew closer to Saturn, but still positioned off center from the south pole of Saturn. This would have disrupted the northern end of the Gulf Stream. A thousand years later (5200 BC) it was over; Earth had repositioned to more or less directly below Saturn, although I have identified this as 5800 BC.

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Note 2 --

Any charged object in space will attempt to isolate itself from external electric fields by forming a plasma "double layer" at the outer edges of its plasmasphere, which will isolate its own electric field from the exterior field. The largest voltage drop will be between the exterior field and the field at the interior of the plasmasphere. This boundary is called the "double layer." The double layer consists of an interchange of positive and negative ions drifting back and forth across the boundary between the exterior and interior electric field. Inside the plasmasphere there is very little voltage difference until the surface of the planet (or comet) is reached.

This is actually a very efficient means of isolation. The double layer will reconstitute itself as charges move across the voltage boundary. Similarly, the very low voltage drop inside the plasmasphere will keep like-charge ions separated, and thus maintain the low-voltage gradient.

The edges of the Earth's plasmasphere, where the double layer exists, are located some 10 to 20 Earth diameters away from Earth, thus 80,000 to 160,000 miles (250,000 km) away from Earth. (The Earth's diameter is 8000 miles, 13,000 km.) When the plasmasphere double layer is constituted, the Earth would be invisible to the electric field of Saturn, even if all of the Earth were within Saturn's plasmasphere. Gravity sees through plasma double layer, and thus keeps the Earth from escaping to outer space.

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Note 3 --

Mel Waskin, in *Mrs. O'Leary's Comet* (1985), has some comments on Tunguska. He writes:

"Since the tail of a comet always points away from the Sun, this comet's tail had to have been extended toward the west [the Sun being in the southeast at 7:30 am]. It would then be at right angles to the path of the comet's head

as it entered the Earth's atmosphere. The tail would stretch westward from Siberia more than a thousand miles across Europe, producing the brightness that amazed everyone on those June nights in 1908. The tail would drift high above Earth, unable to penetrate the atmosphere."

This is all a fantasy, woven into a narrative in the imagination, and not even correct. The Sun was in the east (not the southeast) at 7am in the morning (it rose in the northeast at 2:30 AM), so that the supposed tail would actually be more or less in line with the direction of travel -- if the tail could have been seen at all. Waskin assumed that this tail was made up of "ices" so as to reflect sunlight, and only a thousand miles (1600 km) long, rather than the typical comet plasma tail which ranges to 100,000,000 miles (160,000,000 km).

The actual tail was described by observers as a "tube." It would have been formed by the shadowing of the Earth's electric field, so that the Sun at this point has nothing to do with the direction of the tail. Within the plasmasphere of the Earth the tube would point straight up from the bolide.

At least, that was my initial interpretation. But there are many observations of a tube extending from Earth up to the location of an explosion in the sky. These are usually neglected by most researchers except those inclined to UFOs and extraterrestrials with underground bases in Siberia. See for example the writings of the Russian Valery Uvarov, at http://www.bibliotecapleyades.net/ciencia/esp_ciencia_tunguska09.htm. Uvarov quotes as a source G. K. Kulesh, who was an observer at a weather station in Kirensk, about 460 kilometers from the site of the Tunguska explosion:

On 30 June an unusual phenomenon was observed to the northwest of Kirensk that lasted roughly from 7.15 to 8 am. I did not see it myself, as I sat down to work after recording the reading of the meteorological instruments. This is what occurred (I give the gist of what those who witnessed it said).

At 7.15 am, a fiery pillar appeared to the northwest, about four sagens [over 8 meters] in diameter in the shape of a spear. When the pillar disappeared, five strong brief bangs were heard, like cannon shots following quickly and distinctly one after another. Then a dense cloud appeared at that place.

We would have to conclude that the return thunderbolts in these instances consisted of plasma fireballs rising from the Earth, which even today are at

times seen with a tubular form directed out of the Earth. Forms like this, but on a much smaller scale, have been seen at the location of genuine crop circles (See a later chapter for this). Uvarov also wrote:

"The reports of researchers and explanations of scientists speak of a single Tunguska object. Yet the eyewitness accounts of the event itself and the evidence gathered by researchers stubbornly indicate that there were several objects in the sky, following different trajectories from different directions, but most significantly moving slowly, parallel to the Earth's surface, sometimes stopping, changing course and speed -- in other words, maneuvering -- which entirely excludes the suggestion that the objects seen were comets or meteorites.

Since electric fields propagate instantaneously, the Earth would sense the field of the approaching bolide as soon as the foreign field reached a certain threshold value.

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Note 4 --

It generally takes the time period of the death of the old guard before concepts admitted to orthodoxy are dropped. Meanwhile their graduate students and press release people sort of cover up the facts to make them conform to the mainstream consensus of an era, even when they make absolutely no sense.

As an example, this is an anecdote which appeared in *Aeon Magazine* a number of years ago (1998) under the title of "Solar System Studies" by Fred Hall:

"While we have never viewed asteroids and meteoroid swarms up close, we now have space probe data on comets. First a probe was renamed ICE and run through the tail of the Giacobini-Zimmer comet with interesting results. The immediate NASA report was 'no dust, a maelstrom of electromagnetic effects and a need to completely rethink our approach with regard to cometary theory.'"

"In about a week this was changed to 'less dust than expected and a somewhat surprising amount of electromagnetic effects.'"

"In about a month the news was further refined to 'the comet was a dirty snowball as had been foreseen by accepted theory.'"

Something of a similar shift in reporting happened with the reporting on the probe "Deep Impact" aimed at comet "Tempel-1" for an impact on July 4, 2005. I gathered press on "Deep Impact" on July 4, 2005, and at two weeks, two months, two years, and five years later. The last instance was after new images had been taken of the impact site which showed nothing although NASA claims otherwise. See the Appendix "Deep Impact."

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Note 5 --

See also a summary of expected activities for the event at [\[www.thunderbolts.info/tpod/2006/arch06/060202tunguska.htm\]](http://www.thunderbolts.info/tpod/2006/arch06/060202tunguska.htm) and [\[www.thunderbolts.info/tpod/2006/arch06/060203tunguska2.htm\]](http://www.thunderbolts.info/tpod/2006/arch06/060203tunguska2.htm). These basically conform to what is being presented here. I did not run into these until after writing up the information on Tunguska based on the eyewitness accounts which I had collected. These two descriptions also treat plasma as if it is a fluid being poured onto the Earth, and various effects happen within this. Electric field effects are entirely neglected.

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Note 6 --

Ted Bunch, one of the co-authors of the 2007 paper by Firestone, et alii, notes the following in an email to Leroy Ellenberger, and forwarded by Leroy on April 13, 2010, *"None of the typical shock criteria are found, although magnetic spherules, Iridium-rich fraction, carbon melt spherules, and nanodiamonds are found at Tunguska."*

The next chapter will point up the uselessness of most of these particles as data. -- they point nowhere in particular. Off the point of this endnote although relevant to a later discussion, he also wrote, about the fires at Tunguska, *"No crater, but intense and directional short lived fires (flash heating). ... Computer simulations (Sandia Labs) suggest that if the gaseous jet from an aerial detonation hits the ground, the upper few millimeters may be melted/vaporized as well as flash heating of all vegetation."*

I don't doubt any of this, except for "the gaseous jet," that is just an insane fantasy, especially in the use of the definite article. The original idea of the gaseous jet scenario can be attributed to a Russian investigator, A.E. Zlobin, in 1989.

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Note 7 --

A blast of 10×10^8 megatons of TNT was the original estimate of Luis and Walter Alvarez before the Chicxulub crater was identified. It represents the dissipation of the total of all of the kinetic energy of a large incoming bolide of a diameter considerably smaller than the 110-mile (177 km) diameter Chicxulub crater.

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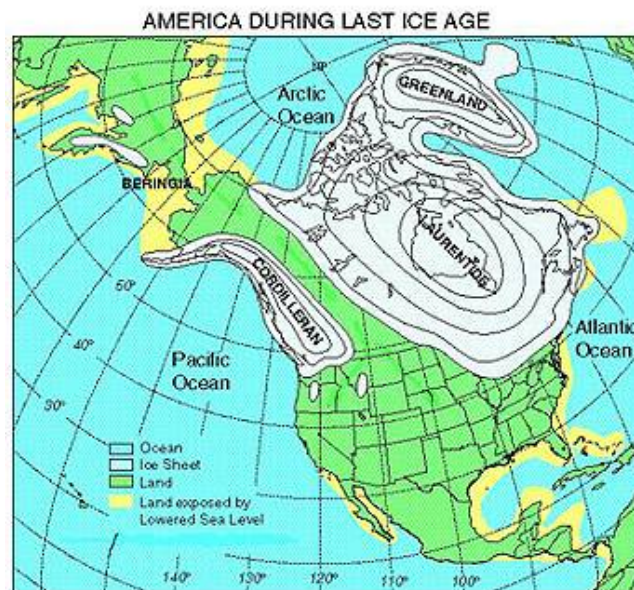
Chapter 9: Event of the Younger Dryas.

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[\[The Great Lakes\]](#) [\[Carolina Bays\]](#) [\[Earlier Contacts\]](#) [\[Endnotes\]](#)

Having introduced some radically different archaeological data for Lower Michigan Clovis spearpoint sites with the 2001 article by Firestone and Topping, the team reinforced itself by adding 23 additional authors, and in 2007 published, "Evidence for an extraterrestrial impact 12,900 years ago that contributed to the megafaunal extinctions and the Younger Dryas cooling." The effect -- many authors, many disciplines -- was a bombshell, despite the terseness of the paper.

The Laurentide Ice Sheet



[Image: Laurentide Ice Sheet at circa 14,000 bp;
after N. Short, rest.gsfc.nasa.gov (2008)]

The demise of the Laurentide Ice Sheet, as presented here, will follow the research and published paper of Richard Firestone and 24 other authors, presented in 2007. Although very brief, this paper will invoke the Tunguska event as a model; I will invoke interplanetary electric phenomena. The results are almost the same and indistinguishable, except for a matter of scale. And, of course, I will also hold that the 1500 years of extreme cold of the Younger Dryas was the direct result of a darkness caused by the soot of the continental fires which drifted into the stratosphere and blocked sunlight.

Firestone, et alii, will waffle, blaming the cold of the Younger Dryas at some point to the traditional theory of a "shutdown" of the Gulf Stream, as well as the stratospheric soot which blocked sunlight from reaching the surface of the Earth, but with much less emphasis on the last, with the weasel words of "these mechanisms tend to be short-lived". So, although an absolutely overwhelming catastrophe is proposed, completely obliterating all life in North America (no humans are seen in North America for the next 1000 years) and affecting almost all of the Earth, the description of damages is seriously curbed. Placing blame with the Gulf Stream "shutdown" is a throwaway comment, as I have pointed out in the previous chapter.

Only in a few instances do the authors suggest the absolutely tremendous magnitude of this catastrophe. I will do better and propose forces large enough to have shoved the Rocky Mountains off the nearby central plains. This last item is a substantial difference between my suggested course of events and the geological analysis by Firestone, et alii.

I have little trouble with their archaeological, chemical, and radiological analysis, except in the insistence by the researchers on intergalactic sources. The effects of the strange event at the start of the Younger Dryas are certainly within the range of expected phenomena due to an electric field interaction. The difference is primarily in the causes, but I can also much more clearly match the expected results with the scope of the data, and do so without engaging in ad-hoc qualifications to a basic and sound theory. I am using a predictable interaction between two planets when their plasmaspheres touch. It is a model developed in some detail in the 1970s, based on plasma theory developed in the early and mid-20th century, which in turn derives from the electric field theory of classical physics of the 19th century. All of the theory is still in active use today.

On the other hand, the work of Firestone, et alii, is awash in doubt when it comes to causes. This is especially to be seen in the book by Firestone, Allen West, and Simon Warwick-Smith, *The Cycle of Cosmic Catastrophes*, published in 2006. Nothing fits properly, so that there are claims to a strange collection of imagined causes. These include, starting from the initial suggestion of a neutron bombardment (2001), the following: a nearby supernova of some star (2001 and 2006), a coronal mass ejection by the Sun (2003), a comet or series of comets of unusual composition, which have included "burned out" comets, frozen dustballs "fluffier than snow," and meteors composed largely of carbon or of glass (variously in 2006 and 2007). In each case an incoming bolide explodes high above the Laurentide Ice Sheet and the Great Lakes, and perhaps penetrates the Laurentide in the Hudson Bay region. Meanwhile, Lower Michigan turns radioactive (as detailed in the previous chapter), as happened also to the six-inch-thick layer of black algae which seems to have covered North America almost from end to end after the start of the Younger Dryas.

The data certainly cannot be ignored, and much of the processes resulting in these data, as laid out by Firestone, et alii, are certainly expected to be correct, but the ultimate causes are not, especially when they are based on the analogy of Tunguska, which is hardly properly understood today, even after the hundreds of Russian investigations. I will claim, for the start of the Younger Dryas, a very simple electric field interaction with Saturn. The establishment researchers claim rather a "very unusual comet" (their words) which exploded in an air blast and left no mark except for dropping tiny diamonds (nanodiamonds), magnetic iron pellets, fullerenes (buckyballs, mostly of Carbon-60), and carbon glass (Carbon-Oxygen forms). Almost all of these forms might be produced with the stupendous electric field compressive impact over a very large area, and the resultant flash of stupendous heat. But all of these molecular forms are perhaps easier created by massive electric arcs although for some of the data (particles or chemistry) I may have to invoke an atmospheric transfer from Saturn via its double layer.

The abstract of the 2007 paper by Firestone and others reads in part, [abbreviations expanded]:

"A carbon-rich black layer, dating to 12.9 thousand years ago, has been previously identified at 50 Clovis-age sites across North America and appears contemporaneous with the abrupt onset of Younger Dryas cooling. The in-situ bones of extinct Pleistocene megafauna, along with Clovis tool assemblages, occur below this black layer but not within or above it."

"In this paper, we provide evidence for an extra-terrestrial impact event at 12.9 thousand years ago, which we hypothesize caused abrupt environmental changes that contributed to Younger Dryas cooling, major ecological reorganization, broad-scale extinctions, and rapid human behavioral shifts at the end of the Clovis Period."

I'll take a check on the "human behavioral shifts." I would think that any human who witnessed the "crushing impact" would be dead, incinerated, and reduced to a vapor. In fact, the archaeological record draws a complete blank for all of North America for the next thousand years after this date. Humans came back, apparently from Central America and the Caribbean where they survived, and first show up in the Southern United States after about 600 years. They returned with a spear blade technology known as the "Folsom" point -- smaller, but based on the earlier large fluted "Clovis" points. This is the behavioral shift. The really large and sharp detachable Clovis points were no longer needed; big animals everywhere had disappeared. The smaller Mexican buffalo had started to migrate up into the North American grasslands.

The second point made by this paragraph, "changes that contributed to Younger Dryas cooling," I would also take exception to, especially in the light of the 2010 article in *Scientific American* by Alan Bobock and Brian Toon, "Local Nuclear War, Global Suffering," discussed in the previous chapter. There can be little question that an "event" which burned down the entire North American continent would have caused a massive downturn in temperature because sunlight was blocked from reaching the surface of the Earth for a very long time.

"Clovis-age sites in North America are overlain by a thin, discrete layer with varying peak abundances of (i) magnetic grains with iridium, (ii) magnetic microspherules, (iii) charcoal, (iv) soot, (v) carbon spherules, (vi) glass-like carbon containing nanodiamonds, and (vii) fullerenes with extra-terrestrial helium [within Carbon-60 spheres], all of which are evidence for an extra-terrestrial impact and associated biomass burning at 12.9 thousand years ago."

Not mentioned is that the black layer includes the remains of freshwater algae. Directly after the impact it rained and rained and rained. For the authors the magnetic spheres, carbon-glass, nanodiamonds, and fullerenes are signs of extraterrestrial origins, although these carbon forms also regularly show up in rocks which have been struck by lightning, just as fullerenes are found in the

soot from fires. These forms are also associated with meteorites. This is to be expected, since meteorites, as with asteroids, are but the broken remnants after interplanetary lightning strikes. [\[note 1\]](#)

"This layer also extends throughout at least 15 Carolina Bays, which are unique, elliptical depressions, oriented to the northwest across the Atlantic Coastal Plain."

As they make clear elsewhere, the "layer" **does not extend throughout** the Carolina Bays. Some of the peculiar carbon particles, mainly carbon-oxygen glass, appear randomly (and sparsely) mixed with the sands of the Carolina Bays. The Carolina Bays, a designation for a landform occurring throughout North America (but not elsewhere), is the touchstone for this disaster. These are oval shaped deposits of fine sands in sheets 6 feet to 30 feet thick, placed on older strata, with raised edges enclosing pools of water. The Carolina Bays will be addressed further below. [\[note 2\]](#)

"We propose that one or more large, low-density extra-terrestrial objects exploded over northern North America, partially destabilizing the Laurentide Ice Sheet and triggering Younger Dryas cooling."

Of course I disagree with the "explosion" of a "low-density" "extra-terrestrial" object, but notice that the effects are almost the same. The exploding object, even if large, would represent a compressive force radiating out from a point source, although rapidly lessening in effect away from the location directly underneath the overhead explosion. Since an aerial detonation is spherical in the distribution of force, the effect will fall off as the square of the distance from the exploding center. The fall-off is very considerable. This fact completely contradicts the data obtained by the Firestone group, but is glossed over.

There are serious questions (admitted also by the researchers) of what this "exploding object" would be made of, and how it would blow up. The traditional model (supposedly) for this is the uneven expansion of a rocky object (meteor) as it heats up due to air resistance. But our experience of breakups of meteors is that these happen high up in the stratosphere where there is little air resistance. We seldom hear the sound of meteor explosions.

As I have already suggested for Tunguska, the breakup and explosion happened because of the electric stresses at a molecular level experienced as the rocky object entered the Earth's electric field. It exploded electrically.

The researchers, perfectly aware of the problems associated with suggesting that a meteor blows up (for whatever reason), have instead selected a "comet" as the incoming object -- as if this would make a difference. This will do as a fantasy object, since we have never seen or experienced a snowball comet entering the Earth's atmosphere. Personally, I simply cannot imagine what would happen to such an object on approaching closer to the Earth, even if there were such things as frosty iceball comets.

This is where the researchers fall back on the traditional "air resistance" model. The snowball or iceball will explode, it is insisted upon, because it is being heated up. So the authors proceed with an "icy comet," which is flash-heated so that all the ice or water expands into steam -- suddenly. On expansion the ice or water of the comet turns to steam which takes up 1500 times the volume that the water or ice originally occupied. It might be likened to a steam boiler exploding, without the boiler or the buildup of pressure.

It is thus assumed that the "mountain sized" snowball entered the atmosphere at perhaps Mach 25 (7 kilometer/second, 15,000 mph). For an object entering the atmosphere at such a speed, heat is produced by compression of the air and a simultaneous rise in temperature at a shock front directly ahead of the object. The heat is not due to friction, but caused by the compression of atomically disassociated (ionized) air.

Would this melt the snowball? Wikipedia, under the heading of "Shock layer gas physics" ("Atmospheric Reentry"), reads:

"An approximate rule-of-thumb used by heat shield designers [of returning satellites] for estimating peak shock layer temperature is to assume the air temperature in kelvin to be equal to the entry speed in meters per second - a mathematical coincidence."

At 7 kilometer/second (7000 meter/second), the shock front would develop a temperature of 7000 Kelvin in contact with the leading edge of the mile-wide snowball or iceball. A temperature of 7000 degrees is about what a space entry vehicle experiences at its heat shield. But the maximum entry speed might be as high as 70 kilometer/second, suggesting a temperature of 70,000 Kelvin at the shock front (although such a speed would be very unlikely).

The heated air, however, largely slips past the leading side of the incoming mountain of ice, and the temperature of the air or atmosphere past the mountain and in its wake would drop radically. Even if not, would this heated shockwave

be enough to have all of the snow or ice change phase to a liquid, and then change phase again to a vapor? This has to be accomplished in only a few seconds. The blazing object at Tunguska was seen for 10 minutes or more.

I sort of doubt that. The whole idea of an "explosion" of a lightweight ice or snow comet, even if of absolutely gigantic size and traveling at an astounding speed, is enigmatic. The heat of the air at the shock front mostly bypasses the snowball, just as it does with returning spacecraft.

Back to exploding an iceball. Adjustments can be made to the parameters of the imaginary comet -- the size of the incoming object, the speed at which it enters, and the angle at which it enters the atmosphere. The result is that a larger object would represent a larger explosion, a higher incoming speed would increase the shock front temperature but reduce the time to get anything accomplished, but a longer flight path would give more time to melt and vaporize the snow. And then the snow mountain would blow up, causing the blast of the detonation to impinge on the surface of North America.

As Firestone, et alii, write, *"Such airbursts effectively couple the impactor's kinetic energy with the atmosphere or surface, producing devastating blast waves."* That deserves some comment -- to be provided further below.

At this point in the paper the authors have invoked Tunguska, suggesting a precedence for the notion of exploding iceballs by analogy to the Tunguska event, where, after 100 years of investigations and research, there is still no agreement on what the object was or what happened to it.

"The shock wave, thermal pulse, and event-related environmental effects (e.g., extensive biomass burning and food limitations) contributed to end-Pleistocene megafaunal extinctions and adaptive shifts among PaleoAmericans in North America."

I do not doubt the shockwave, the thermal pulse, and the other environmental effects (barring "adaptive shifts"), for all the evidence points to the fact that something like this happened. But that is data. The assignment to an aerial detonation of a giant icy comet as the cause is only sustained by fantasy and is almost completely unlikely, except, of course, that the researchers have no recourse but to use the stock characterizations from the mythology of science.

An expanding compressive shock wave of air, which the authors suggest slammed into the Earth's surface in North America, is something different from

the shock front which rides with an incoming bolide. The authors therefore elect to represent the event as an explosion, because an explosion, such as due to the rapid oxidation of volatile chemicals -- like dynamite or Hydrogen gas -- produces a traveling wave front which expands outward from the location of the explosion. The resulting expansion is the product of the heat of the chemical reaction. This is called a detonation and consists of a rapidly expanding shell of high-pressure and high-temperature gas. The temperature and pressure of the expanding spherical surface also, I should point out, falls off very rapidly with distance.

A massive electric repulsive force has the same effect, and can better explain the burning of the whole continent. A point source, or a source of a limited size, even if miles across, would result in a radial drop-off in effect between "ground zero" and any location further out. That means that whatever the effect would be at one mile from the detonation, the effect would be one fourth at two miles, one ninth at three miles. But the effects will need to be felt well over two thousand miles (3200 km) away from Hudson Bay, even though the effects would be 1/1,000,000th at 1000 miles from ground zero.

A compressive electric field force impinging from above, over an area of perhaps 1000 or 2000 miles (3200 km) diameter, has the same results, but to a degree much greater than what can be imagined as resulting from an exploding icy object a mile or even a few miles in diameter.

Objects at the surface -- mammoths, trees, men -- would be crushed. The very surface of the Earth would be depressed, forcing up the peripheral regions in an instant rebound. The atmosphere would be compressed, and its temperature would rise by thousands of degrees, probably enough to melt rocks and make it flow as a liquid. Evidence of this has been noted by Dennis Cox, an independent researcher, for mountain ridges in the west. The heated compressed air mass at the surface would attempt to escape laterally, burning up everything in its path. This is a blast of heated air which, although diminishing with distance from the original impingement circle of 1000 to 2000 miles diameter, would sustain its extreme temperature for a "wave front" thickness of perhaps up to 500 miles (800 km). That is totally different from the thin high-temperature shell that propels away from an aerial detonation like a soap bubble. The Clovis hunters, together with any standing mammoths, would have been lofted into the air by the wind and completely incinerated in seconds to fall back to Earth as dust. Not as much as a tooth has ever been found of any of these people, only their fires and stone tools. [\[note 3\]](#)

In the text of the paper, Firestone, et alii, detail what they are adding to earlier data:

"Directly beneath the black mat, where present, we found a thin, sedimentary layer (usually less than 5 cm) [2 inches] containing high concentrations of magnetic microspherules and grains, nanodiamonds, iridium at above background levels, and fullerenes containing extra-terrestrial helium [Helium-3]. These indicators are associated with charcoal, soot, carbon spherules, and glass-like carbon, all of which suggest intense wildfires."

The magnetic microspherules and some other materials are associated with a ground impact, not with atmospheric explosions -- *à la* Tunguska. They admit as much:

"Most of these markers are associated with previously recorded impacts, but a few are atypical of impact events."

"The evidence points to an extra-terrestrial event with continent-wide effects, especially biomass burning, but the size, density, and composition of the impactor are poorly understood. Even so, current data suggest that this impactor was very different from well studied iron, stony, or chondritic impactors."

I'll say.

I agree with the obvious evaluation of "continent-wide effects." Has fallout been considered? A fallout of atmospheric dust which settled to a depth of 2 inches over all of North America? Admittedly, that is a lot of dust.

"Poorly understood" is shorthand for "we don't know." The authors suggest "most likely a comet," and admit that "the current geologic and geochemical evidence is insufficient to fully understand impact dynamics." It was indeed "very different," something which I will get back to further below, and nothing is known about it -- "insufficient to fully understand."

As I started developing the text of this chapter, contrary studies came forward (which I am not quoting here). And already a number of catastrophists have bought into the concept, and even Clube and Napier have jumped on the bandwagon. My immediate thinking was that any "impact" that could cause 1500 years of cold and darkness would have to be astoundingly large. It would

not likely be an oceanic impact, for that would only have put water vapor into the atmosphere (as happened at the Exodus of 1492 BC).

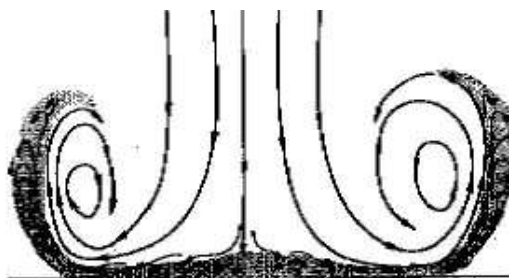
What most likely happened, as I have already suggested, to cause the start of the Younger Dryas is that nanometer soot entered the stratosphere -- from the largest instantaneous forest fires ever experienced on Earth. That condition answers all the climatic requirements for the Younger Dryas, worldwide. The nearly 2000-year warming period prior to the Younger Dryas had repopulated the plains of North America with trees. There was plenty to burn. (The dry High Plains east of the Rocky Mountains did not come into existence until the catastrophe.)

The Sequence of Events

And so the orthodox paradigm is established. Hesitant tales involving exploding "ET" objects will continue to be told. If the explosion was due to electric field interactions, then the causes are straightforward and the sequence of events is predictable. What becomes then of the greatest interest here is the data which will explain the darkness. But let me first again provide an overview of how an electric field interaction with another planet would develop, with a few details added.

(1) the compressive impact

A compressive shock is the first element of the electric contact. It is initiated as soon as the planets sense the nearly equal electric charge of each other within a common plasmasphere. The repulsive electric field force is propagated instantly. The repulsive force of the electric field exceeds the gravitational attractive force by more than a billion times a billion times a billion times a billion (10 to the 39th power).



[Image: schematic of a so-called "microburst," a compressive downward-directed air mass, which is analogous of the 1000- to 2000-mile diameter externally applied repulsive force. After Fernando Caracena.]

Firestone, et alii, however, use the Tunguska event as a model for the impact of 10,900 BC. The interpretation of their data thus follows the causal lines suggested by the establishment for the enigmatic Tunguska explosion of 1908. I have provided (what I think is) a coherent analysis of Tunguska in the previous chapter. Firestone, et alii, add:

"In 1908, at Tunguska, Siberia, an object less than 150 meters in diameter, either a carbonaceous asteroid or a small, burned-out comet [what on Earth is that?], produced a less than 15-megaton airburst with an intense fireball (10 exp 7 degrees C [10 million degrees Centigrade]) that scorched about 200 square kilometers of trees and leveled about 2,000 square kilometers of forest, yet produced no crater or shock metamorphism."

"A debris shower from a heavily fragmented comet would have produced an airburst barrage that was similar to, although exponentially larger than Tunguska, while causing continent-wide biomass burning and ice-sheet disruption, but again possibly, without typical cratering."

I was surprised at the opening phrase (quoted earlier), "would effectively couple the impactor's kinetic energy with the atmosphere or surface," for this statement would not pass a high-school physics exam. But in addition, Tunguska is not a good model; a better model would be the Himalayas and the Tibetan Plateau. The Himalayas at the edge of the northern border of India form a circular arc some 1,600 miles long (2500 km), which has all the looks of the edge of a compression shock area. The Tibetan Plateau is a depression, behind the arc of mountains, which has rebounded to a much higher elevation. Almost exactly the same form can be seen in the North American high plains and the adjacent Rocky Mountains. I will present the Tibetan electric field contact, which happened (I suspect) in the year 2349 BC, in the chapter, "The Career of Jupiter," with the details of the mechanics involved discussed in Appendix B, "Celestial Mechanics," complete with diagrams.

The details of the 2349 BC event, and a number of others, were developed long before I took it in mind to look at what all the fuss was concerning the article by Firestone, et alii, about the possible aerial explosion over the Laurentide. The date of the start of the Younger Dryas fit well with a general flight plan I had already developed for an accidental approach of Earth to Saturn and its planets.

The initial admission of Earth to the plasmasphere of Saturn and an electric field contact would have caused a tremendous interaction. The suggestion of an explosion over North America at the start of the Younger Dryas suddenly took on a sensible perspective -- sensible, that is, on my terms, not to the establishment narratives which were developed in total absence of any such notions and are hard and fast linked to fantasies of comet explosions and other articles of faith of mainstream science orthodoxy. As I have noted, this can't be helped for the researchers. They have to conform.

I am here invoking a repulsive force, which would result if the two planets (Earth and Saturn) were of near equal charge. Saturn would carry a much higher positive charge because it came from beyond the edge of the Solar System. To experience a repulsive force, Earth would also have been positive to a nearly equal degree, which is a possibility.

If Earth were negatively charged while meeting up with a positively charged planet, the whole affair should have been limited to an attractive force and an arc between the planets in an attempt at charge equalization.

There is an arc (after the initial contact), but it apparently only starts up in earnest in 4077 BC, some 7000 years after the event under discussion here. Perhaps I should also claim a condition of "insufficient to fully understand."

(2) the impact center

From the looks of the curvature of the Rocky Mountains it would seem that Hudson Bay might indeed have been the geometric center of the initial repulsive shock. The area affected probably had a diameter of 2000 miles. I should point out that the shock wave probably traveled to the west coast of the American continent at a rate of 700 miles per hour (1000 km per hr).

The 2000-mile diameter is based on the geometry of other (later) shock impulse areas on Earth, Mercury, and the Moon (which are detailed in later pages, especially Appendix B, "Celestial Mechanics"). We would expect the shock impact area to extend over about 25 to 30 degrees of the circumference of the Earth. The area where the initial shock was felt would thus have been 1700 to 2000 miles in diameter (2700 to 3200 km). The arc of the Rocky Mountains is, in fact, about 1000 to 1200 miles from the center of Hudson Bay -- the "impact" location which has also been suggested by Firestone.

A 2000-mile diameter area would have extended the reach of the shock area in the north to the edge of the Arctic Ocean, in the east to the west coast of Greenland, and in the south to below the Great Lakes. The shock would have traveled in all directions around the Earth to meet at the exact opposite location and would have compressed the Earth surface into a ringed pattern. The antipodal location is in the Indian Ocean, however. Otherwise we would have additional proof of the delivery of the shock from a signature antipodal pile-up - as we have for similar shock locations on both the Moon and Mercury.

(3) the central area

The first effect of the compressive force would be to push the surface of the Earth down, with the result that the region outside of the 2000-mile diameter area, where the applied force would no longer be vertical, would be pushed up in rebound of the Earth's crust. The central area would thus be expected to be flat and perhaps cracked. It is, in fact, as flat as a pancake, leaving only the earliest geological strata in place, the Canadian Shield.



[Image: Rocky Mountains viewed from the west at Salt Lake city. Public Domain.]

(4) the peripheral mountains

The size of the area affected is determined by the addition of the parallel vectors representing the electric field of the external planet, and the spherical electric field of the Earth. This results in a considerable drop-off away from the center area which is facing the externally imposed electric field. The curvature of the Earth thus causes the applied force to change progressively from being

perpendicular to the Earth's surface to assuming an angle much lower to the surface. Rock breaks at a sixty-degree angle to an applied impact. Thus at the periphery of the impact region, the forces would act to shear mountains from their base, in effect plowing them ahead of the applied force.

This is what happened to the Himalayas, and what happened to the Rocky Mountains. As the forces declined, with an induced change in polarity of the Earth's surface facing the external source (today the western High Plains) would rise.

(5) the center relocated

The center of the applied compressive force would move in its location because the Earth kept rotating. Additionally, because the impulse of the shock was north of the equator, at first the spin axis of the Earth would tilt away from the source of the external force. Thus, in this case, the center of the location which directly faced Saturn would move south.

The initial shock in 10,900 BC produced twice the torque produced by the much later shock at the Tibetan plateau, at about 35 degrees north latitude. In 10,900 BC the center of the impact area was located much further above the center of Earth, at 60 degrees north latitude. The radius arm of the torque was almost twice as large.

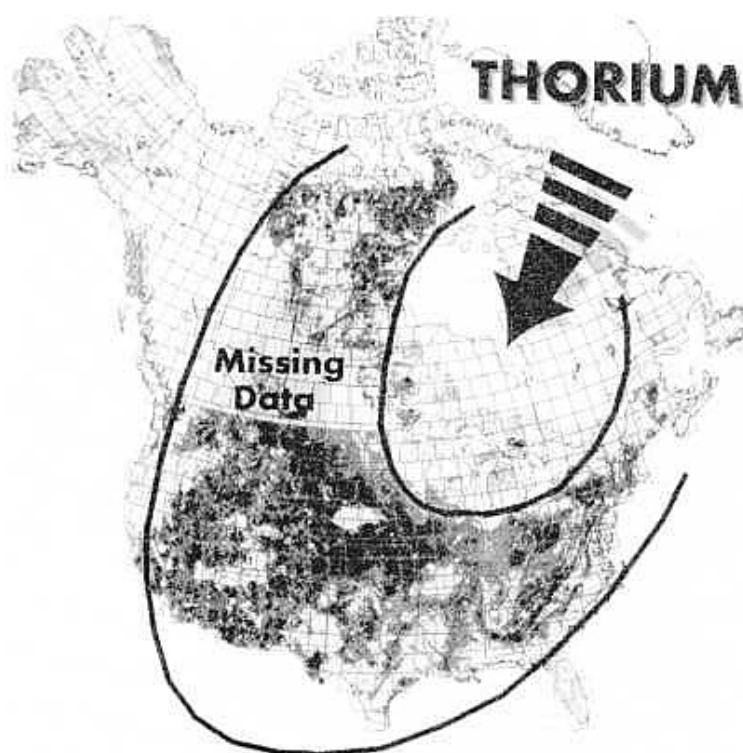
The initial shock would have been immediately followed by a gyroscopic reaction torque also applied about the center of the Earth. The gyroscopic reaction would attempt to re-establish equilibrium for the dislocation of the spin axis. For the case of an external torque applied above the Earth's equator (as here), the gyroscopic reaction will start a rotation of the Earth's spin axis in a counterclockwise direction as seen from above the North Pole. Thus the "west" would move to the "east" faster than the normal rotation of the Earth would do.

Where the center of the impact would move would also depend on the season, that is, in what direction the Earth's axis initially pointed. Of course we have no record of this, unlike the Himalayan impact (which we happen to know to the calendar day), although the season could reasonably be established from the likely relocation of the center of the impact area and the location of the arc.

The center of the impact would move south because the northern hemisphere of the Earth would be shoved away by the exterior force. A gyroscopic reaction

torque would respond to this at the same moment, and attempt to rotate the facing Earth surface toward the east in order to cancel the disruption. Thus normally we could expect the impact zone to move south and west.

But it mainly moved south. I would suggest that the center of the impact was not the middle of Hudson Bay, but at James Bay, at the south end of Hudson Bay, somewhat east and north. I am basing this on a map of the distribution of Thorium in North America presented in the book by Firestone, West, and Warwick-Smith, *The Cycle of Cosmic Catastrophes*, published in 2006, and a year before the major paper by Firestone, et alii.



[Image: Thorium in North America.
(The tip of the arrow is at James Bay.)
After Firestone, et al, "*The Cycle of
Cosmic Catastrophes*," figure 24.6.]

The authors Firestone, West, and Warwick-Smith draw an elliptical area as the "Thorium-free zone" as if to suggest an impact area for a bolide angling in from the northeast, but a look at their map projection graphics would instead suggest a circular area on a globe, which would include all of the province of Quebec and Newfoundland. Using a typical map projection results in a distorted surface

depiction. The northwest corner of Hudson Bay is within this area, as is the US Midwest through Ohio in a semicircle below the Great Lakes.

This central Thorium-free circular area seems like the best location for my proposed compressive force. The center of this is at James Bay at the southern edge of Hudson Bay. This location, as the center of an impact force, is east of most of the Great Lakes, except for the east-most lakes, Erie and Ontario, which are almost directly below James Bay. This circular area with a center at James Bay would solve the problem of having to suggest that the Earth turned a half hour east from the meridian location of the "impact" by virtue of the fact that the position of the Earth's axis of rotation was leaning toward the trailing part of the orbit -- as happens at the spring equinox. This last could still be true, but now it is obvious that if the Earth's axis tilted back from the impact force, it would first bring Lake Ontario into direct line with the exterior planet.

(6) the high temperature blast

Considering what enormous forces were exhibited just in the plowing of the mountains, it can be understood that animals and humans did not survive in most of North America. The sudden compression of the air would have instantaneously raised the temperature by thousands of degrees -- and incinerated everything in a continental conflagration.

The fires were confined to the west and south. To the north and east lay the remnant of the Laurentide Ice Sheet. This might have been cracked and compressed and might have been pushed aside -- plowed, like the mountains were. It would have also been affected by the pulse of heat emanating from the center, causing melting of the top surfaces of the glacier.

The researchers have given recognition to the heated atmosphere, suggesting a heat impulse with a temperature of 1000 degrees Centigrade -- 1800 degrees Fahrenheit, enough to melt rocks. This, of course, is based on a point source for a compressive shock wave -- an explosion over the Laurentide Ice Sheet. Except in detail, it would be largely indistinguishable from a 2000-mile diameter area of downward directed force, which much better represent the heating, for it was extensively experienced at surface level -- as the data indicates.

The blast of compressed air which is suggested to extend from a point source above the Laurentide Ice Sheet would reduce the heat of the compressive impulse in relation to the distance from the center. This would differ from the

case under consideration here -- an external electric field compressive force of large diameter. The roll-out of pressure from the very large "impact" zone would be horizontal and of much greater magnitude.

The soot fell out of the stratosphere, worldwide, over the next thousand years. This layer of carbon, dated to the start of the Younger Dryas, is, in fact, the most significant data, and recognized as such with the already quoted opening line of the article of Firestone, et alii:

"A carbon-rich black layer, dating to 12.9 thousand years ago ... appears contemporaneous with the abrupt onset of Younger Dryas cooling."

(7) cause of the cooling

It is certain that the soot in the stratosphere not only caused the cooling, but also completed the extinction of much of the North American fauna. There is no need to invoke sudden death due to a wave of extra-terrestrial particles, even if we allow that this, or something like it, happened. The megafauna animals in North America were crushed by the initial compressive force, or instantly obliterated (gasified) by the initial blast of heat of the hurricane winds. The following darkness and the failure of plant growth for a period of 1500 years, or even 1000 years, would remove any of the remaining large animals.

Firestone, et alii, write:

"Increasing evidence suggests that the extinction of many mammalian and avian taxa occurred abruptly and perhaps catastrophically at the onset of the Younger Dryas, and this extinction was pronounced in North America where at least 35 mammal genera disappeared, including mammoths, mastodons, ground sloths, horses, and camels, along with birds and smaller mammals."

"At Murray Springs, Arizona, a well known Clovis site, mammoth bones and Clovis-age stone tools lie directly beneath the black layer where, as described by Haynes, 'The sudden extinction of the Pleistocene megafauna would be dramatically revealed by explaining that all were gone an instant before the black mat was deposited.'"

The extinctions were worldwide. But it was not due to a worldwide influx of neutrons from the far reaches of space or a blast of particles from the Sun. The extinctions, as suggested from the various time delays after the start of the

Younger Dryas, were due to the shadow which fell on the Earth, inhibiting plant growth, and starving the larger animals. Before the Younger Dryas came to an end almost all the huge animals disappeared everywhere except in the tropics, far southern South America, and far Northern Asia. Sixty genera disappeared in Asia; and as many in South America -- twice as many as in North America.

The researchers hold that the "explosion" above North America was the cause for the rapid melting of the Laurentide glacier covering Canada, the extinction of the megafauna, and the 1500-year period of extremely cold climate. Of these three, the climatological mechanics of how the cold came about -- for a period of 1500 years -- remains unexplained by them. What I have suggested is that the same carbon layer which is found on the ground and dated to the start of the Younger Dryas everywhere in North America also occurred in the atmosphere and would have levitated into the stratosphere -- a lasting shadow descended over North America, and within weeks spread throughout the world.

(8) the resulting darkness

The darkness can be held as true without question. North American Indian tribes uniformly recall the darkness at the beginning of time and the beginning of creation, even though their ancestors had experienced the shadow elsewhere than in North America. And neither had they experienced the blast. But everywhere in the world, in the mythology of people, nothing existed earlier. Dwardu Cardona, in *Flare Star* (2007), writes, "*Myths of the age of darkness surface so often among various Amerind tribes that a complete list would bore the reader to death.*" Quoting the Yuma, "*There was no sun, no moon, no stars -- just darkness.*" The darkness came at the beginning of all existence, but this was told by people who invaded the North American continent 600 to 1000 years later, for the original North American tribes, like the megafauna, had been obliterated. Cardona also quotes from Maya, Aztec, and Inca sources. They all say the same thing.

These myths, in fact, exist throughout the world. But archaeologists, astrophysicists, biologists, and geologists are totally unprepared to deal with so-called "myths" as evidence -- despite the ubiquity of this evidence among our forefathers.

(9) energy estimates

Firestone sources O.B. Toon from a 1997 article in *Review of Geophysics*, on the amount of energy involved:

"Toon, et alii, suggest that an impact capable of continent-wide damage requires energy of 10×10^7 megatons equivalent to an impact by a greater than 4-kilometer-wide comet."

An object two and a half miles in diameter (4 kilometers wide), larger than most mountains are high, is thus suggested, with an equivalent "impact" energy of 10×10^7 megatons, which probably represents its kinetic energy. This is 10,000,000,000 kilotons of TNT, thus equivalent to 600,000,000 atomic bombs. This value is **an order of magnitude less** than the estimate for the Chicxulub event.

Toon, et alii, also suggest that explosions at an "optimal height" would cause damage "over an area the size of North America, that is, equivalent to a ground impact of 10×10^9 megatons." The value of 10×10^9 megatons in turn is **an order of magnitude greater** than the Chicxulub explosion. Thus we could probably assign an explosive value 10 times larger than the Chicxulub explosion. If these values are reasonable, or even of about the same magnitude, then, knowing the ecological damage done worldwide by the Chicxulub "impact," to which is attributed the extinction of the dinosaurs 65 million years ago, we can reflect on the damage that might have been done at the start of the Younger Dryas.

(10) fine-tuning of nonsense

It is important to note that the authors shun away from an exact "impact" location, because nothing has been found, yet it would have been of an enormous size (2.5 miles, 4 km, in diameter, they say).

There was no impact location. There should be something, perhaps ten times larger in area than the 110-mile (177 km) diameter Chicxulub crater, or at least as large as the 240-mile (400 km) Grand Canyon scar. Firestone suggests the Great Lakes region as the center of the impact, although later in their paper the authors add Hudson Bay. Both apparently are correct.

The Great Lakes region was not under the glacier at the start of the Younger Dryas. Jonathan Adams, in "North America During the last 150,000 Years" (Oak

Ridge National Laboratory, 1998), describes the Laurentide glacier already largely in retreat:

"Just before the beginning of the Younger Dryas cold phase, continuing retreat of the ice sheets and recolonization of vegetation allowed conifer forests to return across the Great Lakes region. ... Alaska remained as Tundra, and areas most recently exposed by the retreating ice were also still Tundra."

Because the authors (Firestone, et alii) believe that only an aerial blast could be expected to leave no mark if it happened above the mile-thick Laurentide Ice Sheet, Hudson Bay has been added as an impact location. They write:

"The lack of a crater may be due to prior fragmentation of a large impactor, thereby producing multiple airbursts or craters."

The critical reader will recognize this as the fine-tuning of nonsense. Having suggested that perhaps the large bolide broke up while above the surface of the Earth (*à la* Tunguska), there is then reason to additionally suggest that the smaller parts would not penetrate the ice:

"These results [unpublished impact experiments by P. H. Schultz, one of the authors] suggest that if multiple 2-kilometer objects struck the 2-kilometer-thick Laurentide Ice Sheet at [an angle] less than 30 degrees, they may have left negligible traces after deglaciation."

"Thus, lasting evidence may have been limited to enigmatic depressions or disturbances in the Canadian Shield (e.g., under the Great Lakes or Hudson Bay), while producing marginal or no shock effects and dispersing fine debris composed of the impactor, ice-sheet detritus, and the underlying crust."

Interestingly, it seems that the most obvious cause for cooling during the Younger Dryas is dismissed. About the effect of cooling the Earth's surface due to dust in the stratosphere, the authors write, as I noted before, *"these cooling mechanisms tend to be short-lived."* The sentence continues with:

"... the [clouds] can trigger longer-term consequences through feedback mechanisms. For example, noctilucent clouds can reduce solar insolation at high latitudes, increasing snow accumulation and causing further cooling in a feedback loop."

But snow (moisture) is carried by warm air, not by cooler air. Increased glaciation was not experienced at all, anywhere on Earth, during the Younger Dryas.

This sort of less-than-thorough analysis causes more enigmas and unresolved questions than are explained. The error, as shown by the *Scientific American* article by Alan Bobock and Brian Toon, is to think that dust in the stratosphere would be short-lived. Bobock and Toon had conservatively suggested a period of 10 years for firestorms produced by the equivalent of 1500 kilotons of TNT -- 100 Hiroshima-sized atomic bombs. Coauthor to Firestone, O.B. Toon, had conservatively estimated the damage of the event of the Younger Dryas as representing 10,000,000,000 kilotons of TNT -- equivalent to 600,000,000 atomic bombs, and being "short lived." Who are we kidding here?

Firestone, et alii, instead place their bets with a 1000-year Atlantic cooling, due to the sudden influx of icebergs from the Laurentide Ice Sheet into the North Atlantic. It is doubtful, however, how much of the Laurentide still existed (this was also suggested earlier by Firestone and Topping). With the onset of the severe cold of the Younger Dryas, further melting of the Laurentide would have abruptly ceased. And sliding glaciers need to melt from the bottom in order to skid into oceans. There are no marks of "Heinrich events" recorded in the Atlantic at this time or later. Heinrich events are the dates for debris layers in the Atlantic attributed to glaciers sliding into the ocean. These suggest major dates for large-scale glacial-melting conditions. The last was 500 years before the onset of the Younger Dryas.

In fact, the "collapse of the Gulf Stream," which Firestone invokes under the aegis of North Atlantic glacial influx cooling, is today (and at the time of their paper) more properly dated to about 6200 BC, and lasted a thousand years, thus to 5200 BC. This started 3000 years after the end of the Younger Dryas. This also probably has nothing much to do with a diversion of the Gulf Stream, but more likely represents a large tidal system rotating around Earth in the North Atlantic and North Pacific as Earth started to draw closer to Saturn, but still positioned off center from the south pole of Saturn. It was the nearness of Saturn which caused the new tidal system. This would certainly have disrupted the northern end of the Gulf Stream. A thousand years later (5200 BC) it was over; Earth had repositioned to more or less directly below Saturn, although I have identified this as 5800 BC in later chapters.

(11) Hudson Bay

The reason for suggesting Hudson Bay as an alternate to the "ground zero" of the Great Lakes is that the Great Lakes region was not covered by ice at the start of the Younger Dryas (even though depicted as such on most "historical" maps). Yet, as Firestone, et alii, have pointed out, the most likely location of a center of impact is the lower Great Lakes, in that "abundances of microspherules and magnetic grains decrease with increasing distance from the Great Lakes region [meaning Lower Michigan]." From the prospect of an electric interaction, the Great Lakes location was not the impact site -- it was instead the location of a series of anode strikes of planet-to-planet electric thunderbolts. This will be a somewhat later element of the complete interaction.

(12) changed polarity

Minutes into the repelling force, the surface of the Earth facing Saturn would have started to change polarity (becoming less negative) by induction, cancelling the repulsive force, and substituting an attractive force. This would have kept Earth from entirely escaping from the Solar system, or to a much larger orbit around the Sun. The attractive electric field forces would also aid the rebound of the depressed area where the repulsive impact was first experienced, and would move the already raised peripheral region even higher. (The sequence of forces responsible for this is detailed in Appendix B.)

In fact, there is a large plateau running parallel to the Rocky Mountains, called the High Plains, and located nearly a mile (1.5 km) higher than the plain to the east. This is similar in shape and location to the Tibetan high plateau, also adjacent to an arc of shoved-over mountains. I would certainly expect a similar raised plateau east of the Rocky Mountains.

Traveling west from Chicago, you will reach a location where a five- or ten-mile incline takes you up to 6000 feet (2000 meters) above sea level. It is called the High Plains in the USA. The High Plains are much longer in the north-south direction than it is wide in the east-west direction. But it is a mile high, and distinct. The region is not as wide as I would have expected when compared with the Tibetan Plateau. The plateau extends from the east part of Colorado, at the base of the Rockies, through Eastern Wyoming, Western Kansas and Nebraska, Eastern Montana adjacent to the Rockies, parts of Western South Dakota and North Dakota, and Alberta province in Canada. The plateau includes, as noted by Wikipedia, buttes and rock outcroppings, as if we are looking at buried mountains, which is how these mountain roots are often represented by geologists. These are the left-behind roots of the Rockies.

(13) the electric arc

As the surface of the Earth facing Mars changed polarity through induction from positive to less positive, this potential difference, aided by the ionization of the atmosphere due to the heat pulse, would have initiated an attempt at charge equalization. The location to which the center of the "impact area" had shifted would most likely have been the region of the eastern Great Lakes region (as I have described).

But there is nothing seen at the Great Lakes that looks at all like the Grand Canyon. Except, of course, the Great Lakes themselves. And if the Earth was the anode in the electric arc exchange (rather than the cathode, as with the Grand Canyon), we could instead expect a series of giant conical holes as a result. [\[note 4\]](#)

The east-to-west travel of the arc must have been erratic, both at the Great Lakes as at the Grand Canyon. We would expect a general movement of the contact point of the arc to initially travel to the south, because the northern hemisphere had been hit, and the northern hemisphere as a result would be tilting away from the location of the contact. Overlaid on this movement would be a travel of the arc to the west, following the turning of the Earth to the east.

Unlike the Grand Canyon, which clearly is a cathode mark, the Great Lakes excavations clearly are anode electric arc marks. And they are gigantic! In a dry landscape an incoming lightning bolt would make a neatly carved circular or conical depression, looking like some sort of impact crater of an object headed for Earth on a trajectory perpendicular to the ground. But there is no evidence of meteorite fragments, no shocked quartz.

In the wet or frozen environment of the central flatlands of the midwest region of the USA, the results were very much like the depressions and concavities produced at the Tunguska site. Except, of course, that the scope is many orders of magnitude greater. Whereas at Tunguska the holes were 6 to 10 feet (2 to 2.5 meters) in diameter (and 12 to 15 feet deep), and some apparently much larger, the blast holes at the Great Lakes look to be 20 to 30 miles (30 to 50 km) in diameter at the bottom. This is an estimate based on what looks like the diameter of the deepest portions of the five lakes, all of which are nearly circular. To go from an area of a 10 feet diameter circle to the area of a 20 mile diameter circle, means that each of the five blasts at the Great Lakes were individually 100 million times more powerful than at Tunguska.

After the furthest east lakes (Ontario or Erie) were struck, the arc would have traveled west, or rather somewhat southwest. South because the northern hemisphere was initially moving away from the direct line of contact, and west because of the rotation of the Earth. After a strike at Lake Erie, the arc seems to have located north to Lake Huron, and then maintained a nearly westerly direction, across Lower Michigan (where there are hundreds of deep conical lakes) and into Lake Michigan, first at the southern lobe, and then north to the Chippewa Basin, before jumping north to Lake Superior. The lineup of locations follows the same general directional changes as the rip of the Grand Canyon.

The relocation of the Earth's surface under the external force in this sequence of events can be attributed to the gyroscopic reaction torque. If the gyroscopic reaction increased the rotation of the Earth toward the east by 50 percent, the whole of the arcing would have taken a half hour.

The series of electric arc strikes at the Great Lakes suddenly moved inexplicably north from Lake Michigan into Lake Superior. This may represent the moment when the Earth's axis was being uprighted again. The change in forces from repulsive to attractive probably had started to lift the original leaning of the rotational axis away from the external force, so that the "impact center" in effect moved north (the Earth surface at the Great Lakes moved south). Allowing for a time delay due to this second gyroscopic reaction, this could represent the relocation of the arc from lower Lake Michigan to Lake Superior.

The arc skipped penetration in Central Lower Michigan, perhaps because of a dome of Mississippian, Silurian, and Ordovician rock filling a lower Cambrian and Precambrian depression in that location. The arc may have played here momentarily, resulting in the later notice by Firestone and Topping of the evidence of an atomic blast. Perhaps the center of the Earth, which might have been the destination for the electric arc, could not be easily reached here.

[\[note 5\]](#)

In the book *The Cycle of Cosmic Catastrophes* (2006), the authors Firestone, West, and Warwick-Smith also suggest Lake Michigan as the site of two impacts, one at the center of the lobe-shaped lower (southern) portion and one at the level of Door County in Wisconsin (the Chippewa Basin). This is based not only on the deep depressions in the Lake, but also on collapsed edges surrounding these. Admittedly the discontinuities found by seismic soundings are faultings of the edges of the depression, but, just as these can be suggested to be "the signature of impact craters," they would also result from a hole bored by

a gigantic electric arc, especially, perhaps, in that the Lake almost immediately started to fill with water. Firestone, West, and Warwick-Smith qualify their suggestion for an impact crater with:

"Usually, around a true impact, we find rocks that are shocked, fractured, and deformed. But we don't think this was a meteorite impact; we think it was a comet impact or bolide explosion."

That's just total nonsense, and an attempt to have their cake and eat it too.

The Great Lakes

The Great Lakes are a geological enigma. They are some of the deepest lakes in the world, yet how they were formed has remained completely unknown. "Submerged arctic currents" of water have been suggested, or that the lakes might follow a natural crack in the crust of the Earth, dating to billions of years ago. Or, it has also been suggested, that the weight of the superimposed Laurentide Ice Sheet pushed into the ground and gouged out the lakes to a depth of 700 to 1300 feet, although glaciers never did that anywhere else in the world over the course of millions of years. What is clear today, and acknowledged, is that there were no Great Lakes "before the end of the Ice Age [about 12,000 BC]." What has not been suggested is that the Great Lakes were created at the very beginning of the Younger Dryas (and thus after "the ice age" by 2000 years) by a series of massive electric arcs, in a matter of a half hour.

The Great Lakes are big -- the largest set of fresh water lakes in the world -- with lengths of 350 miles (560 km) for Lake Superior, 300 miles (480 km) for Lake Michigan, 240 miles (386 km) for Lake Erie, 200 miles (322 km) for Lake Huron, and 190 miles (300 km) for Lake Ontario. Compare these lengths with the 220-mile (354-km) length of the Grand Canyon.

And they are very deep. The Grand Canyon is a mile deep (5000 feet, 1600 m), but the Great Lakes include the deepest lakes in the world (except for Lake Tanganyika, 4800 feet deep, with 4000 feet of muck). Lake Superior is 1300 feet (430 m), Lake Michigan is 920 feet (300 m), and the adjacent Lake Huron is 770 feet (250 m) deep. Lake Erie is only 200 feet (65 m) deep, but Lake Ontario is 800 feet (250 m) deep.

Of course other researchers are denying all evidence of an impact at the Great Lakes, and even suggesting that Firestone, et alii, are claiming an impact, even

though the paper by Firestone does nothing of the sort and only suggests an above-surface detonation. Perhaps this is the result of cautious language and cagey phrasing, although the concept of an air blast was clearly announced. See postings at <http://cosmictusk.com> for additional contentious claims and counterclaims.

Much of the analysis of the "event" is based on the concept of a singular event, or near identical explosive events contiguous in time. But an electric interaction involves a number of discrete phases, which result in at least two "explosions."

The first was represented by the shock of a repulsive impulse. This differs from how the researchers have understood it in being a much larger area -- certainly some 1000 miles in diameter -- rather than a point source. Except for how the shock wave would propagate and how rapidly the effects (like the blast of heated air, the compressive winds) would fall off with distance, the result of the electric interaction and the "exploding 4-kilometer diameter bolide" would match.

Except, of course, on a matter of scale. None of the establishment researchers would ever conceive that the forces involved would be so stupendous that the Rocky Mountains would have been shoved off of the high plains of North America, and piled up in the west. Yet the Rockies have all the same fresh looks that the Himalayas have, which are admitted to be recent in their location ("after the last ice age"), and were shoved over to override another set of earlier mountains. For the Himalayas a 300-million-year "subduction" of the Indian subcontinent was earlier used as a suggested mechanism. There is no continental subduction associated with the Rockies.

The second "explosion" was a thunderbolt of such magnitude that the Great Lakes were carved out of the ground in a matter of perhaps 30 minutes. The establishment arguments against this would be based on an imagined physical impact and issues like the soft or hard underground strata -- as mentioned: Silurian, Devonian rock, Ordovician shale. A lightning bolt just never comes to mind. A lightning bolt that can bore 700 to 1300 feet into the ground will not slow for Silurian rock strata. A lightning bolt answers to the form of the gouged-out lakes, which immediately filled with water from the glacier and with wet soil and muck. The lakes were not scooped out by the glacier. The lakes are all transverse to the direction of the movement of the ice, except for Lake Michigan. [\[note 6\]](#)

The Laurentide Ice Sheet, which still occupied a portion of the Great Lakes region, also would not have brought the arc to a stopping point; instead the arc seemed to have skipped around. The arc moved from east to west, as the Earth rotated to the east. Rather than moving continuously, like the trail at the Grand Canyon, the arc at the Great Lakes seems to have jumped and restarted with each of the lakes. The deep sections of all five lakes are toward the east end and away from the center of each lake (or north for Lake Michigan). Rather than a continuous moving arc, it looks more like the arc was quenched after each of five or more excavations. The adjacent glacier, melting in the radiation of a multi-billion ampere arc, if not already liquified by the thermal pulse of the initial shock, perhaps was the cause of that.

After each quenching the arc jumped. The path at the Great lakes is as erratic as the lower course of the Grand Canyon, which shows a constant seeking and testing for a conductive path. As the Grand Canyon shows, this has nothing to do with the hardness or durability of the underlying strata. The Grand Canyon cuts through to Precambrian rock. I would expect a similar result at the Great Lakes, although there looks to be a false start at the central portion of Lower Michigan, as I have noted earlier.

The general direction of the movement of the series of arcs was from east to west. The land surface of the Great Lakes region might have been higher than today, initially pressed up by the weight of the nearby layer of ice, two miles (3 km) thick. There was a lake, called Lake Chicago, created from melt water runoff from the glacier which occupied what today is the flat area which composes most of the city of Chicago. This should have extended all the way to the state of Michigan, but instead we find the deep southern concavity of the present Lake Michigan.

There is the possibility that the holes of the Great Lakes were not made by a single moving arc, but were made by a series of simultaneous or near simultaneous arcs. If I may be allowed to invoke Tunguska (like everyone else does), I could suggest by analogy that the Great Lakes could represent numerous simultaneously created holes and cavities representing only a few thunderclaps.

Particle Tracks

The 2006 book by Firestone, West, and Warwick-Smith reads: "*... on the flakes found further away from the Great Lakes, the tracks were at an angle.*" (pg. 14).

They are talking about the tracks of charged particles into chert Clovis spearpoints and the flakes broken from these in sharpening the spearpoints.

The difference in angle convinced the authors that this could not be caused by a supernova, for the admission angle in New Mexico should have been only 10 degrees away from nearly vertical. The latitudinal difference between Lower Michigan and New Mexico is 10 degrees (43 degrees and 33 degrees). If Lower Michigan was the epicenter of a supernova blast, then a 10 degrees difference in the angle at which the particles penetrated chert could be attributed to the curvature of the Earth. But apparently the angle was considerably lower than that (closer to the ground). The authors ignore this moment of truth and end up suggesting a supernova anyway.

The ground surrounding the contact point of the electric arc would have become highly negative by induction (with the contact point being positive). (Juergens suggested the same differentiation of positive and negative areas for an arc contact on the Moon.) The result would have been the attraction, by the ground surface, of the positively ionized materials being cast up into the atmosphere, or at least a portion of this. Near the arc column these positive materials, after being repelled straight upward but being reversed by their traversal of the surrounding magnetic field, would have ended up expanding away from each other and would likely have traveled up in a spiral.

Closer to the ground and closer to the central plasma column the ions would have been spun out at high speeds, directed down toward the ground. The rest of the surface of the Earth would also be negative (but less so), and provide attraction to materials lofted into the atmosphere at an angle.

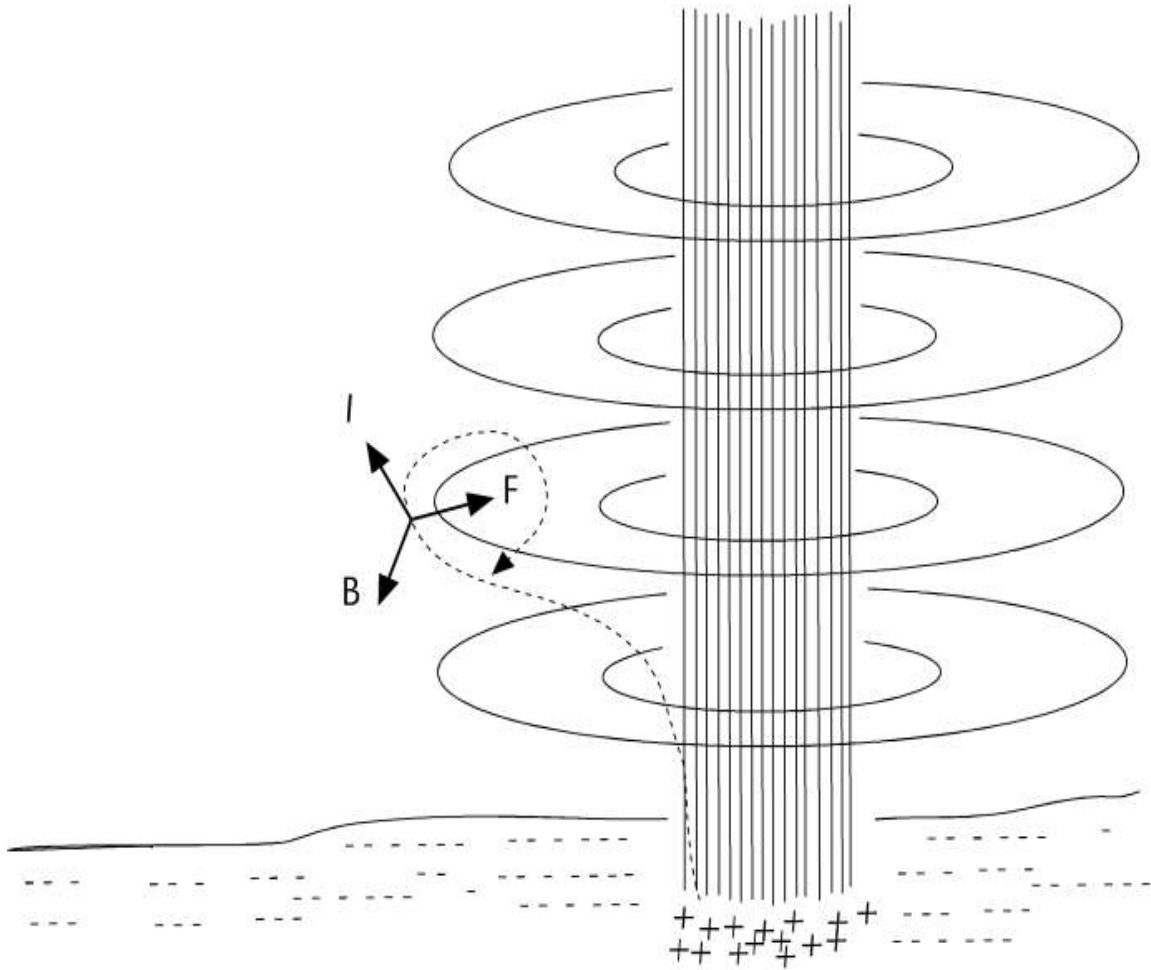
In the 2006 book by Firestone, et alii, it is noted that the entry angles for particles which embedded themselves in Clovis spearpoints (chert) in Michigan suggested a straight down trajectory, whereas locations further away from Michigan showed progressively shallower entry angles as well as less penetration. But in both cases the penetration had to be caused by travel of these particles at absolutely enormous speeds (an estimated 10,000 kilometers per second). It certainly was not gravity which sped up the particles. This suggested to the researchers that the cause of these penetrations was a point source in Michigan, which, of course, was thought to be an exploding bolide.

We can be more specific. First, what is obvious is that because of the enormous arcs at the Great Lakes region, large amounts of small-sized silicate grains would have been created, all positively charged. These would have been

repulsed straight up and away from the ground, traveling both inside the column of electrons as well as at the edges and beyond. As Juergens has pointed out (from other sources), the upward directed positive ions would have been forced out of the electron column (the plasma column) by the differential voltage between the center of the column and the outer edges of the plasma. In plasma columns contained in glass tubing, as in a lab, the positive ions end up being dispersed to the walls of the tubing. For the situation of a plasma contact at the Moon, Juergens suggests that the surface of the Moon is the equivalent of the tubing walls, so that positive ions would be dispersed to a wide area.

Similarly for the arcs at the Great Lakes, positive ions would have accelerated upward within the electric column of the downward directed electrons, and at some point escaped, and then changed direction due to the circular magnetic field just outside of the column, to eventually be directed both away and upward at increasing speed.

The change in direction would be affected by the magnetic field surrounding the plasma stream. The billion-ampere arc would be encircled by an intense magnetic field, as all electric conductors are encircled by magnetic fields. Both the electrons headed for Earth and the positively charged particles moving away constitute a current in the same direction (up, as defined in electric theory). This defines a circular magnetic field in a counterclockwise direction as seen from above. The direction does not matter, what matters is what this field would do to any charged particles lofted into the air from the edges of the arc contact point or which escaped from the plasma column.



[Image: Positively charged particles enter the magnetic field of a plasma column. Further magnetic field lines not shown. Not to scale; sizes and distances altered for presentation. Illustration by J. Cook.]

The ionized particles individually would constitute a current entering a magnetic field. The particles would change direction of travel. The direction of the force experienced by the particles would be at right angles both to the initial direction of travel (the current, since these are positively ionized) and to the direction of the magnetic field vector.

Particles directed upward outside the plasma column, would be diverted away from the plasma column to travel upward in a spiral. Only at the base of the plasma column would ions be sent to travel toward the Earth, and also the same force would move it away from the plasma column. The rotation of ions in the magnetic field does not change the speed of the particles, but it does radically changes the direction of travel.

Thus, seen from a direction facing the on-coming "B" vector of the magnetic field, the positively charged particles would be seen to move in a clockwise direction, in large loops. This is the opposite direction from how electrons spiral tightly about magnetic field lines.

Particles exiting the plasma column at an angle (or lofted up at an angle) would experience the same forces, but, because the circular magnetic field drops off with distance from the plasma column, would negotiate a much larger loop.

Considering the volume of bedrock which was converted to silicate dust, the flying particles must have constituted a virtual rain of materials, all accelerated initially to travel in circular loops. If the arc stopped, the ions would speed away from their circular paths, and, in the region close to the previous arc column, would approach the ground at steep angles, but at much lower angles for destinations further away from the original arc column. [\[note 7\]](#)

In traveling away from the plasma column, the attraction of the Earth's more negative electric field (including the induced negative polarity) would take over at some distance away from the plasma column. The particles would speed up, accelerated electrically, and head toward the Earth's surface. The surface charge would be negative, but much less than normal -- since most of the negative surface charge had been removed by induction.

Particles headed for Earth's surface close to the original plasma arc would be accelerated straight down by the region of high negative charge just outside the plasma stream, and attain phenomenal speeds. This would account for particles deeply bored into chert at the Great Lakes region.

This spread of the kinetic energy for the particles at the launch location might account for particles cast much further away from the arc, and at lower angles.

The situation outside the arc column is not unlike protons traveling in circles in a cyclotron (also at right angles to a magnetic field), which only gain velocity as an electric field is periodically imposed between the two halves of the cyclotron. This could have been accomplished with fluttering or interruptions of the plasma arc column.

We are dealing here with particles which are smaller than the size of sand grains, but constitute clumps of thousands of molecules, and do not carry single electric charges like protons, but multiple positive charges. Protons will not penetrate chert, or much of anything else, even at energy levels of solar protons

("cosmic rays"). Protons also leave almost no record. The charged grains, on the other hand, already accelerated by the electric field outside the plasma column, could be traveling at enormous speeds once they are released to travel toward Earth.

Another source for the deflection of charged particles might be the single electric field impulse generated whenever the arc stopped. This would be caused by the sudden drop of current in the column of the arc. The collapse of the magnetic field would cause an electric field to be generated, in a standing formation reaching from the Earth's surface to the ionosphere or beyond, plus a transverse magnetic field in the opposite direction as the circular magnetic field associated with the original plasma column. Together these would move out from the center (where the arc had collapsed) at the speed of light, as a single pulse -- a radio wave, a traveling electric field with a magnetic field at right angles. Such a planet-sized radio pulse is not to be neglected, for it could carry an enormous amount of energy.

Neutron Flux

In addition to the positively charged sand-grain sizes of pulverized bedrock, the plasma column would have drawn vast quantities of positively charged protons from the Earth. This bears on the position expressed by Firestone and Topping in their 2001 paper, which reads (as presented in the previous chapter):

"Our research indicates that the entire Great Lakes region (and beyond) was subjected to particle bombardment and a catastrophic nuclear irradiation that produced secondary thermal neutrons from cosmic ray interactions."

"The neutrons produced unusually large quantities of Plutonium-239 and substantially altered the natural uranium abundance ratios (Uranium-235 to Uranium-238) in artifacts and in other exposed materials including cherts, sediments, and the entire landscape. These neutrons necessarily transmuted residual nitrogen (Nitrogen-14) in the dated charcoals to radio-carbon [Carbon-14], thus explaining anomalous dates."

The culprit here is the neutrons, and their genesis in turn is "cosmic ray interactions." "Cosmic rays" are protons. The generation of neutrons could be explained as the process of inverse beta capture by protons -- that is, the equivalent of the addition of an electron to a proton. This can happen to protons

in the nucleus of an atom, but does not generally happen to free protons unless additional energy is supplied. (Protons are Hydrogen atoms stripped of an electron.) But there is a simpler solution than a remote supernova.

Firestone and Topping here limit the neutrons as "secondary" and "thermal," that is, neutrons supposedly generated after interactions of protons with other elements and the atmosphere. "Thermal" here means that the neutrons are randomly directed with a range of low speeds.

Let me point out that the incoming stream of electrons, which constitutes a plasma flow in Z-pinch constriction, not only produces radiation in x-rays, ultra violet, and visible light, but also produces neutrons. So, for the situation of an immense electric arc, we have the protons, we have the electrons, we have the neutrons, and we have the surplus energy.

Topping again pointed up the "neutron event" in a reply to comments by John Southon and R.E. Taylor, published in *Mammoth Trumpet Magazine* in issue 17 (2002). William Topping wrote:

"'Depleted' Uranium-235 is caused by neutrons, and the excessive Plutonium-239 found in various Paleo-Indian artifacts also is attributable to 'neutrons in prehistory' considering all available evidence. The genesis of Carbon-14 is neutrons (Nitrogen-14 + n = Carbon-14), and the fact that we have hard evidence for prehistoric neutrons necessarily means Carbon-14 had to have been produced both in situ, and in the atmosphere."

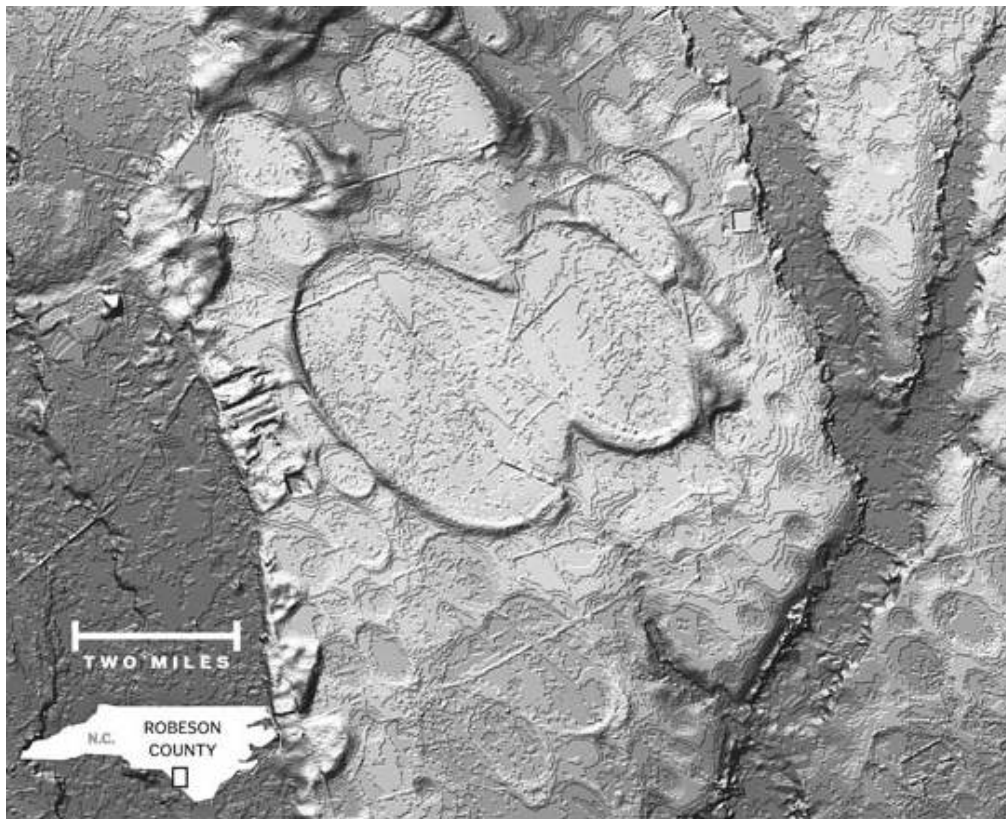
"Again, it effectively is statistically impossible for all of these results to be 'coincidence,' and the bulk of the evidence in the form of McMaster methodology, gamma analyses, and associated radiochemistry are consistent and coherent in detecting a prehistoric neutron event."

The Carolina Bays

Where the arc at the start of the Younger Dryas struck, it reduced rocks and soil to the consistency of fine sand and clay-sized silicates with no particular distinguishable features, and sprayed it out into the atmosphere like a lawn sprinkler -- and likely with as much water as sand. If there was a spray to the north, it fell on the glacier. We have no record of that except for the amount of silt left behind after the glacier melted.

To the east the spray reached the east coast of the continent and the Atlantic Ocean. North of the states of New Jersey and New York there is no land record; all of the spray might have landed in the Atlantic Ocean. But south of there, and especially in the Carolinas, there is a clear record of oval-shaped depositions of fine sands in sheets 6 feet to 30 feet thick, placed directly on top of older strata, called Carolina Bays. The sand splotches are deposited in three strips near the Atlantic. These are not old strand lines.

Further south from Northern Georgia the spray would have fallen on mountains and more rugged terrain. The "Carolina Bay" forms are only occasionally recognized in Florida, Alabama, and Mississippi. The spray shows up again further west in Texas, Kansas, and Nebraska -- a state full of sand anyway (these last locations are identified in the book by Firestone, West, and Warwick-Smith).



[Image: Carolina Bays, Robeson Co, NC. After *Virginian-Pilot*,]

The sand includes no fossils or plant material. It is basically sterile. And on the sand layers there are giant depressed oval forms, so that together the marks look as if giant spheres of wet sand were tossed, looking like paint splatters. These

forms are universally known as the Carolina Bays, even when not in North or South Carolina.

In the following sections I'll review three proposed models for the Carolina Bays, starting with an earlier paper which is amazingly insightful and coherent, even if inconclusive.

Eyton and Parkhurst

J. Ronald Eyton and Judith I. Parkhurst in "A Re-evaluation of the Extraterrestrial Origin of the Carolina Bays" (University of Illinois, 1975), archived at <http://abob.libs.uga/bobk/cbayint.html>, write:

"Scattered along the eastern coast of the United States from Southern New Jersey to Northern Florida are approximately 500,000 elliptical depressions collectively called the Carolina Bays. The process or processes forming symmetrical, oriented, shallow basins of different sizes has been disputed since the unique character of bay morphology was recognized from aerial photographs during the 1930s."

"To date at least sixteen hypotheses involving terrestrial or extraterrestrial processes have been postulated as causal mechanisms. Each theory explains some but not all of the observed morphological and stratigraphic characteristics, and each hypothesis has had varying degrees of acceptance."

Eyton and Parkhurst provide details of the Bays: They are oval-shaped ellipses, but not completely symmetrical. The long axis is oriented to the northwest (in the Carolinas), with extensions of the long axes at one time thought to converge in Ohio, but today understood as coming together in Western Illinois and Wisconsin, or in Lake Michigan if allowances are made for the initial speed of the ejecta due to the rotation of the Earth -- as has been pointed out by others (discussed below).

Not mentioned or emphasized by Eyton and Parkhurst is that some of the axial directional lines of the more southern Carolina Bays do not meet in Illinois and Wisconsin, but point north instead and could even be extended to Hudson Bay with some graphical fudging (which Firestone, West, and Warwick-Smith do). In actuality, these nonconforming lines simply cross all the other Great Lakes.

Carolina Bays in southern South Carolina and Georgia point directly north to Lake Erie and Lake Ontario. No one seems to have noticed the obvious.

Eyton and Parkhurst also were unaware of the distinctly shaped Carolina Bays in Nebraska, where the axial line extensions mostly intersect the axial line extensions of the Bays of the Atlantic coast and the Carolinas -- in Central Wisconsin and Northern Illinois.

The Bays consist only of shallow depressions, with a surrounding ridge of sand ("elevated sandy rims"), which is almost always somewhat higher in the southeast -- or opposite the direction from which the splashes seem to have arrived. Many Bays overlap others, without destroying the pattern of the initial Bay, a detail which seems to have utterly confounded most of the researchers (including Firestone). But if understood as aerial depositions of wet sand, it will start to make sense. All the Bays thus look equally well preserved, without regard to the age and condition of the substrate -- "equally preserved on terraces of different ages and formational processes."

As Eyton and Parkhurst summarize:

"... the remarkable regularity with which these characteristics recur suggests that further consideration of a unique, causal mechanism is warranted."

Eyton and Parkhurst then "speculate" (their wording) about a meteor on a low trajectory coming in from the northwest, and shattering over Indiana and Ohio, to send 500,000 fragments toward the Carolinas, each of which, with an additional explosion above ground, formed a Bay with its individual shockwave.

I won't even comment on the unlikeliness of 500,000 "individual shock waves." I should note more generally that I think Eyton and Parkhurst go astray with their reliance on the supposition that there is a physical difference between asteroids (known to be rocks), meteors (thought to be rocks), and comets (thought to be snowballs). I would readily entertain their model if I still believed the totally unsubstantiated notion of comets as snowballs, dirty iceballs, or icy dirtballs. The authors also were unaware of other Carolina Bays in Texas and Nebraska (and other locations), where the long axes of the Bays point to the Great Lakes (that is, north and northeast). This largely argues against a meteor on a trajectory from the northwest.

What Eyton and Parkhurst have proposed is a model based on the supposed sequence of events at Tunguska -- a low trajectory, an aerial comet shattering, and compression shockwaves reaching the ground. Plus the later finding at Tunguska of "*spherules believed to be part of the object*" -- on the assumption that there might have been "*an admixture of small grains of non-icy 'dirt' in the dirty iceberg.*" (Eyton and Parkhurst quoting W.K. Hartmann.)

Robert Kobres's meteor

Robert Kobres, a researcher in Athens, Georgia, and a promoter of meteor impacts as the cause for all earthly catastrophes, has kept abreast of the Carolina Bays investigations by providing a collection of documents on the web. Kobres himself proposes something similar to the model of Eyton and Parkhurst, shock-induced dents in existing sand dunes. (<http://abob.libs.uga.edu/bobk/firewate.html>)

To explain the Bays, Kobres proposes that a comet whipped past the Earth, inexplicably exchanging enormous energy, but not impacting directly to form a typical crater. George Howard (one of the co-authors of the 2007 paper by Firestone, et alii), explains Kobres's model (at <http://www.georgehoward.net/cbays.htm>) as, "*It is demonstrable that such an encounter would show [meaning "project"] an intense flash of heat onto the ground below.*"

I wonder how "demonstrable" that concept really is. I think, in fact, that it is not at all demonstrable. It is pure fantasy. It might work for a dropped bomb with a fuse set to explode it 60 feet above the ground, but the overpassing comet needs to clear the Appalachians, and then locate all the sand dunes and beaver ponds. Where did the sand dunes come from if they were clearly not beaches?

This heat, writes Kobres, would have caused moist portions in the Pleistocene landscape (preexisting springs, marshes, and beaver ponds) to explode into steam, leaving the depressions in the ground that we know today as "Carolina Bays." Kobres's only explicit reference to Tunguska is to "oval bogs" first noted at Tunguska in 1927 (by L.A. Kulik), but implicit is the notion of a comet approaching at a low angle, and an aerial explosion or at least a change to incandescence -- a snowball in flames.

It is, indeed, difficult to imagine anything else than an impact, or, when there is no evidence of an impact, to concoct a damaging non-impact. Meteors or comets

will remain in play as long as the massive forces involved in an electric contact with another planet, or the magnitude of the resulting electric arc, remain unimaginable.

Davias and Gilbride

Michael Davias and Jeanette Gilbride, in "Correlating the Orientation of Carolina Bays to a Cosmic Impact" (circa 2005), at [\[Cintos.org\]](http://Cintos.org), retain the comet, but position it on an orbit at right angles to the comets so far proposed by Eyton, Parkhurst, and Kobres. Their bolide comes from the southwest rather than from the northwest, and detonates over Lower Michigan. But they admit:

"A challenging aspect of a Carolina Bay Impact hypothesis involves the lack of an identifiable impact structure."

I'll say. That has been the problem for all researchers involved in the event at the beginning of the Younger Dryas. Davias and Gilbride feel that a geological mark of an "explosion" is to be found in the middle of the state of Michigan. But, never mind, what I want to do is to follow up on the more imaginative thinking of Davias and Gilbride. Having thought to have discovered a likely "impact" (or "launch") location, Davias and Gilbride start to calculate trajectories from a middle location of Lower Michigan to the Carolina Bays in North and South Carolina, which last is the most obvious landing place of the mudballs (which is my nomenclature) or paint spatters (which is their nomenclature) flung from Lower Michigan or somewhere thereabouts.

Let me first confirm what the reader will have already suspected: that I am in full agreement with the concept developed by Davias and Gilbride that the Carolina Bays, where they are preserved in pristine condition by having landed on a nearly flat surface, obviously are exactly what they call them, "paint spatters." This is so clear and obvious that I am immensely surprised that no one else has noted this.

Of course to be able to imagine that large globs of sand and water (at times miles in diameter) flew through the air and landed along the coast of the Carolinas (and many other locations) requires setting aside the prejudices of small scale physics which limit the imagination. But if the creation of the Carolina Bays is associated with the event at the start of the Younger Dryas (although Davias and Gilbride do not think so), then there should be very little question on the magnitude of startling effects. The event preceding the Younger

Dryas burned down all of the North American continent in a single moment, as evidenced by the same archaeological "black layer" found everywhere.

The other item undertaken by Davias and Gilbride is a correction of the possible trajectories of these mudballs by taking into account the rotation of the Earth (the Coriolis effect) and air resistance. Having some idea for a location of a launch site, estimates were made by Davias and Gilbride of the flight time and from this the angle and speed at which the mudballs would approach the ground. The authors include some graphics on their website of a landing mudball and its deformation. I should explain, however, that the path of the trajectories is a completely open question, except to assume a 45-degree ascending cannonball trajectory. The path of the mudballs through the air simply cannot be known, even though this information is of great interest in determining the landing speed and approach angle of the mudballs, for these might be checked against the general looks of the impact locations in the Carolinas.

And, in fact, it is hard to believe how these objects, if simply composed of sand (soil) and water, would sustain being dropped on the ground at the speed of a landing jet liner (their estimate) and skidding to a stop at half the distance that the Carolina Bays are long. The difficulties that this has presented to the imagination has kept other researchers busy inventing "impact shocks," "secondary explosions," "strong winds," and landings at "pre-selected sand dunes" and "beaver dams." Davias and Gilbride write:

"We have heuristically and empirically identified the Saginaw Bay area of Michigan as the likely impact [launch] location. At the present time we have yet to identify adequate evidence on the ground to validate the impact identification."

For a heuristic model, the proof is in the pudding. Such is the definition of "heuristic." What we actually have here are a number of suppositions which don't qualify as evidence, yet are used to inform the whole of the model:

"Given the relatively shallow angle of incidence and the hydrated nature of a cometary impactor, the geological signature of the proposed impact structures is unconventional: both shallow and oval. Additionally, the conjecture holds that terrestrial material ejected from such an event would be distributed in a 'butterfly' pattern as a thin sheet whose surface occasionally contains 'Carolina Bay' landforms."

These are not different from the analogical suppositions underlying the previous theories. "Analogy is not proof," wrote Alfred de Grazia, "But to humans of all times, analogy *must be* proof."

The "relatively shallow angle of incidence" of the comet, has nothing to do with the "shallow and oval" impact locations. There is nothing to suggest that a low-flying comet would generate shallow oval Carolina Bays. The "butterfly patterns" and the "occasional landforms" are pure nonsense. The "occasional" Carolina Bays number to 500,000 in the Carolinas alone. I am quoting this to illustrate the desperation among researchers in attempting to find causes.

Continuing with the logic of Davias and Gilbride, they next note that the advantage of the "heuristically determined" new location is that loft times for the mudballs are reduced to 6 to 10 minutes, which they consider realistic in that the objects no longer have to be flung into the stratosphere, and would have an exit velocity of about 300 meters per second -- 670 miles per hour (1000 km per hr), 10 times faster than a landing commercial jet. I don't think I can follow any of the math; I'll have to trust them on that.

Mudballs and Frisbees

Regardless of the calculations of Davias and Gilbride, it seems that something has been missed. The Carolina Bays are vastly different in size one from another, and represent masses of sand differing by more than 10,000 to 1. These paint spatters were most likely not launched with a uniform force, because the heavier mudballs would have required more lift or would have fallen far short. The different sized mudballs could only land close to each other if their launching force was independent of their mass. That suggests electrostatic repulsion on individual sand grains as the driving force. For this case the acceleration into the air remains the same since the object sizes remain closely the same: they are grains of sand. It might also suggest that sand and water were launched at the same time and coalesced into spherical forms in transit.

From what is known of the forms -- that they seldom are much longer than wide, that they do not destroy prior Bays, but simply overlay them -- it should be obvious that a low angle for a final trajectory is out of the question. The 700-mile-per-hour (1000-km-per-hr) landing speed would have smeared the mudballs over miles and miles of terrain. So the simile of a landing jet airplane is just not applicable. The Carolina Bays look more like they fell from almost

directly overhead, with very little in forward speed and very little in elevation. They look, in fact, as if they hovered before setting down.



[Image: comparing the flight path of a ball and a Frisbee (flying disk). After Wikipedia.]

The method of achieving a soft landing, which would not disturb earlier Carolina Bays, is to use aerodynamic lift. This suggests, in effect, that the mudballs reshaped in flight into saucers, so that they landed like tossed Frisbees. A sphere has almost no aerodynamic lift, but a rounded (convex) upper surface to a flattened sphere would provide the airfoil and the lift. Understood as Frisbees, the Carolina Bays could very well have flown in at a very low angle before dropping straight down at the last moment. "Settling down" would be a better description of the landings.

At this point something needs to be said of the amazing cohesiveness of the mudballs. These would not have survived the landings at 700 miles per hour or a fall from great heights if it were a simple mix of water and sand. I will suggest a consistency akin to bread dough or window putty.

At the location of the electric arc, dust from ground-up silicates would spread out after being lifted by repulsive electric field forces. It would spread out through mutual repulsion. Steam vapor reacts similarly, as we see in the formation of clouds under normal conditions. But more importantly, water has a valence affinity for the positively charged dust, so that the water vapor would distribute its molecules to cling to the sands.

The water which was part of the flung objects must have adhered to the sand like glue. This is explained if we consider that the sand scoured from the contact points of the arcs would have been positively charged when flung (electrostatically repelled) into the atmosphere. It is precisely under this condition that water vapor, because of its two Hydrogen molecules, would grab the sand. Each sand grain would be surrounded by clinging water, and the water would similarly cling to nearby water. It is called "hydration," and described as follows:

"When an ionic or polar compound enters water, it is surrounded by water molecules (Hydration). The relatively small size of water molecules typically allows many water molecules to surround one molecule of solute. The partially negative dipole ends of the water are attracted to positively charged components of the solute, and vice versa for the positive dipole ends."

-- Wikipedia

Sand is hardly a "solute," except for the peculiar condition in this instance of being positively charged and ground to minute particles. This also happens with clays silted from rock. Clays will hold together as a cohesive mass, capable of holding large quantities of water, but so does bread dough, which is even less plastic.

Additionally, the admixture of a very small percentage of bentonite to the sand would increase its mutual adhesion tremendously. This is the difference between sand with which sand castles can be built, and sand which will not hold together. Bentonite is a very fine clay formation, derived from a number of different natural sources, supposedly by wind and wave action. Bentonite will hold many times its own weight in water, and thus promotes colloidal suspensions and sand adhesion. The possibility that the arc created bentonite as well as sand, is likely.

"The ionic surface of bentonite has a useful property in making a sticky coating on sand grains. When a small proportion of finely ground bentonite clay is added to hard sand and wetted, the clay binds the sand particles into a moldable aggregate known as green sand used for making molds in sand casting [a foundry process]."

"... The same effluvial deposition of bentonite clay onto beaches accounts for the variety of plasticity of sand from place to place for building sand castles. Beach sand consisting of only silica and shell grains does not mold well compared to grains coated with bentonite clay. This is why some beaches are much better for building sand castles than others."

-- Wikipedia

Once the mudballs landed, the sand and water mix would start to separate as the negative charge of the Earth's surface neutralized the six-foot layer of positively charged sand and water. The ovoid would slump, the edges would spread and lift from the weight, and a pool of water would filter up to the top as the sand grains

were released. The particular sequence here is speculative, of course. It only suggestively accounts for the ridges surrounding the water pools. These can be suggested if the ionic release happened quickly. The raised edge on the southeast side of the Bays in North and South Carolina could, with some fudging, be assigned to the remnant forward momentum of the Frisbee mudballs.

The process of hydration and formation into a single cohesive mass takes time, especially in that the mudballs at times were miles in diameter. It is therefore also possible that in many instances this was not accomplished in transit. This failure to coalesce to flying pancakes might result from changing conditions, or changes in the water and sand mixture. Such might explain the fact that in some regions of the USA the elliptical form of Carolina Bay is not well represented, even though axially aligned puddles exist by the thousands.

Launch Location

I apologize for presenting so much detail for the model of Davias and Gilbride, but it represents an ingenious attempt at a solution. I accept the Carolina Bays as mudball landing marks (the book of Firestone, West, and Warwick-Smith will suggest something very close to that), but not the other suppositions, which lend nothing of coherent or significant detail to the model and, as I probably need not point out, are again based on an analogy of what was thought to have happened at Tunguska -- a comet on a low incoming trajectory, an explosion in the air, or, in this case, a soft landing of sorts in Lower Michigan, and at that location the spewing forth of sand (assumed as the topsoil) mixed with water, and distributed in a "butterfly pattern" as per Tunguska.

An objection to the analysis of Davias and Gilbride is their suggestion of a "butterfly" distribution for the launching of the tossed mudballs. Despite the fact that Davias and Gilbride attempt to relate a "butterfly" distribution to a single particular "impact mark" on Mars, there is simply nothing to back up this notion. Firestone, West, and Warwick-Smith also attempt to relate the Carolina Bays to a few oval craters on Mars and the Moon, but also not convincingly.

Not mentioned by Davias and Gilbride is that the "butterfly" distribution first showed up in the literature of catastrophic impacts in an analysis of downed trees at Tunguska by four Russian investigators (Boyarkina, Demin, Zotkin, Fast, in "Estimation of the blast wave of the Tunguska meteorite from the forest destruction," *Meteoritika* 1964).

I would be more comfortable in suggesting that the mudballs could have come from any of the Great Lakes, and certainly from Lake Michigan (which was Davias's and Gilbride's original selection) and from Lake Superior (another obvious choice). The only condition requisite to the formation of mudballs would be the inflow of glacial melt waters as the crust of the Earth was being drilled. At the lower portion of Lake Michigan there already existed Lake Chicago.

In addition to the axial lines (of Carolina Bays) pointing to Illinois and Wisconsin, there are a number of extended axial lines, derived initially from Eyton and Parkhurst, which cross (in small groups of two) somewhere in Canada at Hudson Bay, at about 60 degrees latitude. At least, that is the latitude at which all the researchers so far have stopped extending the lines. Eyton and Parkhurst show only three of these lines, and show them for Bays in Southern Georgia and southern South Carolina (Figure 5 of their paper).

Firestone, West, and Warwick-Smith show 11 lines extending north to Hudson Bay. But this, as with Eyton and Parkhurst's earlier map, is graphical fakery. It proves nothing except that some lines drawn from North Carolina or South Carolina will cross in pairs at Hudson Bay. Some do not cross, but might cross much further north, some will never cross. If these locations represent sources for the Bays, it should be noted that they are also twice as far away as the lines terminating in Lake Michigan.

Firestone, West, and Warwick-Smith use this graphic depiction to suggest additional comet explosions over Hudson Bay. Yet what seems to have been universally overlooked is that all the drawn lines clearly cross all the Great Lakes -- Lake Ontario, Lake Erie, Lake Huron, Lake Michigan, and Lake Superior. These lines do not need to be extended into Northern Canada. All the axial lines point to origins in the Great Lakes.

A Lot of Sand

Where did all the excavated and ground up soil and rock layers of the Great Lakes go? Probably it was ejected skyward and fell down throughout North America, to become indistinguishable from other sediment and stray material, and perhaps identified in the future as glacially caused. As Paul Heinrich (posted at <http://cosmictusk.com>, April 13th, 2010) wrote:

"I have personally seen some of the enormous amount of rock material excavated by glaciers from the Great Lakes that now comprise large parts of thick Wisconsinan, Illinoian, and Pre-Illinoian glacial tills that cover large parts of Illinois and other states."

Certainly not "excavated by glaciers," but, all the same, the material is there. So now imagine a spray of material -- boulders and rocks initially and briefly, and then dirt, fine sand, and water -- jettisoned up at a steep angle at the points of contact of 30 mile-wide electric arcs, and spreading out to be dropped to the ground two and more states away from the Great Lakes. Anything falling on the glacier north of the contact points would disappear to future geological analysis.

The following note from Juergens, on the effects of an arc at an anode surface, comments on the immense destruction at the Great Lakes -- the depth of the bored holes, the disappearance of soil and the underlying rock, the dispersal of this as sand and silicate dust over a large area of North America.

"Typical anode effects of a destructive kind, leaving detectable markings after discharges are extinguished, include intense heating by streams of high-energy electrons [1], and erosion due to the leaching away of surface matter in the form of positive ions [2], as well as to the bulk extraction and removal of materials [3]."

The references above are to: [1]: J. D. Cobine, *Gaseous Conductors- Theory and Engineering Applications* (1958); [2]: J. J. and G. P. Thomson *Conduction of Electricity through Gases Vol. II* (1969); and [3]: E. J. Hellund *The Plasma State* (1961).

The beach sands surrounding the Great Lakes have the same source. This includes the famous Indiana Dunes. The subsoil of Chicago, miles away from the lake, is clean clear sharp sand to a depth of 20 feet (7 meters) or more. The sand is not from millions of years of wave action cleaning out and grinding soil particles to form silt, especially if it is admitted that the Great Lakes did not exist before the end of the Ice Age. This is not beach sand; it is a fine angularly-edged sand, piled up to immense depths. (During recent excavations for new buildings on the north side of Chicago I noted that the sand still carries a static charge.)

You might ask, what would provide closure to this set of incidents? It is the fact that any charged object in space will attempt to "protect" itself from the influence of external electric fields by forming a protective plasma double layer

separating its own electric field from the exterior field. That would probably happen at a considerable speed.

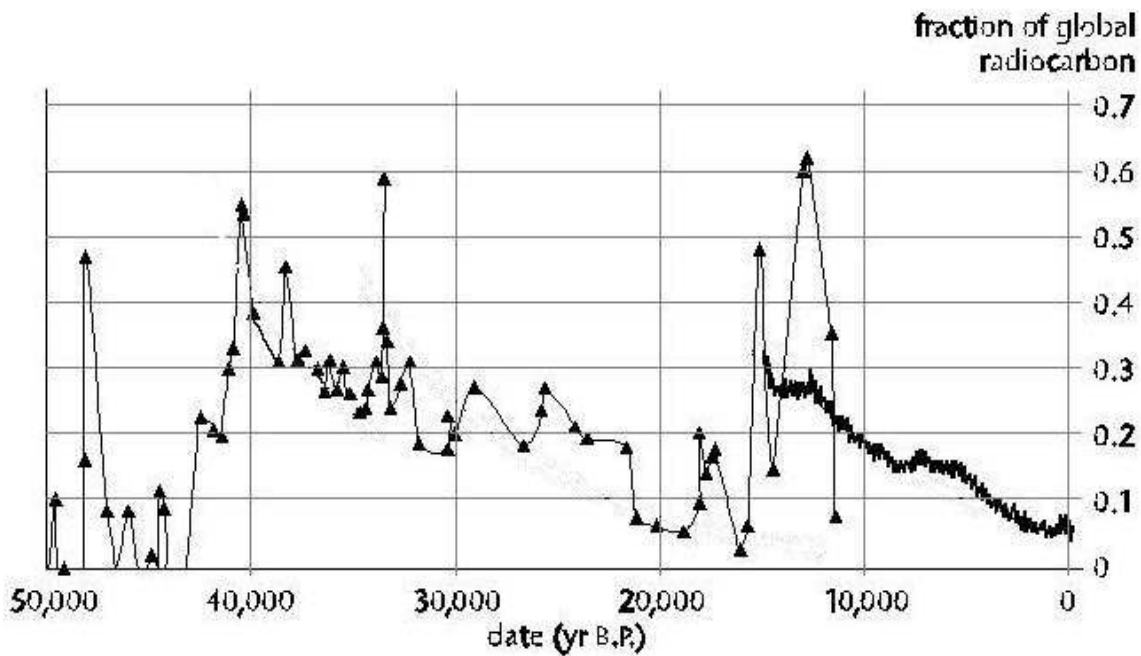
Meanwhile, the Earth was shrouded by a blanket of fine carbon soot in the stratosphere, which didn't subside for 1500 years. This was the experience of the cold and shadow during the Younger Dryas. When it lifted and light returned, the Earth had drifted to a location somewhere below Saturn.

What Really Happened

It could thus be suggested that the earlier periods of cold (and glaciation) were due to the Earth sporadically making electric contact with the plasmasphere of Saturn, and possibly Jupiter, which was located much closer to the Sun initially. This offers a clue to the inevitability of what happened in 10,900 BC.

The evidence, already brought forward in a previous chapter on glaciation, is that prior to this time the Earth's orbit had been continuously modified over extended periods of time, and frequently abruptly. After every modification, and especially after being bounced or dragged to a larger orbit, the orbit of Earth would probably circularize again rapidly (in a few thousand years) on escaping, being under the gravitational influence of the two largest planets in the Solar System, Saturn and Jupiter.

Of some interest in this respect is a graph of Carbon-14 changes since 50,000 ya, presented in the book by Firestone, West, and Warwick-Smith (also presented with the paper by Richard Firestone and William Topping in 2001). The graph shows repeated data peaks which are mostly ignored by Firestone, West, and Warwick-Smith, except as it might seem to validate their theory of a supernova as the cause for the Younger Dryas incident.



[Image: Residual Carbon-14 as a fraction of total observed Carbon-14; after Firestone and Topping.]

The original data is from A.H.L. Voelker, et alii, in 1998. This is shown above, although marked up by Firestone and Topping in their 2001 *Mammoth Trumpet Magazine* article. What is being presented here is the past Carbon-14 level as a fraction of the current value.

As mentioned above, Carbon-14 excursions (peaks) are shown for 13,000 bp, equivalent to 12,900 bp (10,900 BC) in the papers by Firestone. Nothing much is made of the date 3000 years before the 13,000 bp "event," and probably little could be made of it, except the suggestion by some that Australia experienced an extinction event. Of course the researchers want to tie the dates of some of the peaks to the arrival times of waves of particles and other things from a distant supernova, but it looks like there are a lot of peaks in the data which are neglected.

The researchers write:

"Such sharp increases in Carbon-14 on Earth can be caused only by a sudden increase in the cosmic-ray rate or by direct deposition of radio-carbon [Carbon-14] from an impacting body."

"Direct deposition?"

Neglecting the use of this data in the service of proving a supernova, I think the graph can alternately be used to suggest a number of interactions of Earth with Saturn over the course of the last 50,000 years. The graph shows a relatively quiet period of about 6000 years after a large excursion of the level of change of Carbon-14 at about 47,000 bp before the first large increase in 41,000 bp. Perhaps a slow slippage (lowering) of Earth's orbit forced Earth into repeated contacts with Saturn at 2000 to 5000 year intervals -- starting at about 41,000 years ago. Since 41,000 ya, I count 8 peaks from the graph presented as Figure 22.2 in the book by Firestone, West, and Warwick-Smith (or the 2001 paper). [\[note 8\]](#)

In suggesting a supernova as the source of the "event" at the beginning of the Younger Dryas, the authors have particularly noted the two earlier large increases in the Carbon-14 level and hold that all three events are related to a single supernova. The dates of the three events are identified by them as:

- 41,000 ya -- supposedly the arrival of initial Gamma rays, but here also called "cosmic rays," and associated surface radioactivity. The megafauna of Australia disappeared at this time (others suggest that the peak of 47,000 bp was responsible, other data points to 13,000 bp);
- 34,000 ya -- supposedly the arrival of a "shock wave," consisting of "debris" and particles, probably meaning protons, and (uncertain) radioactivity;
- 16,000 to 13,000 ya -- the event before the Younger Dryas, supposedly consisting of a barrage of shrapnel consisting of fullerenes, carbon spheres, magnetic spheres, nanodiamonds, and other things, plus associated radioactivity.

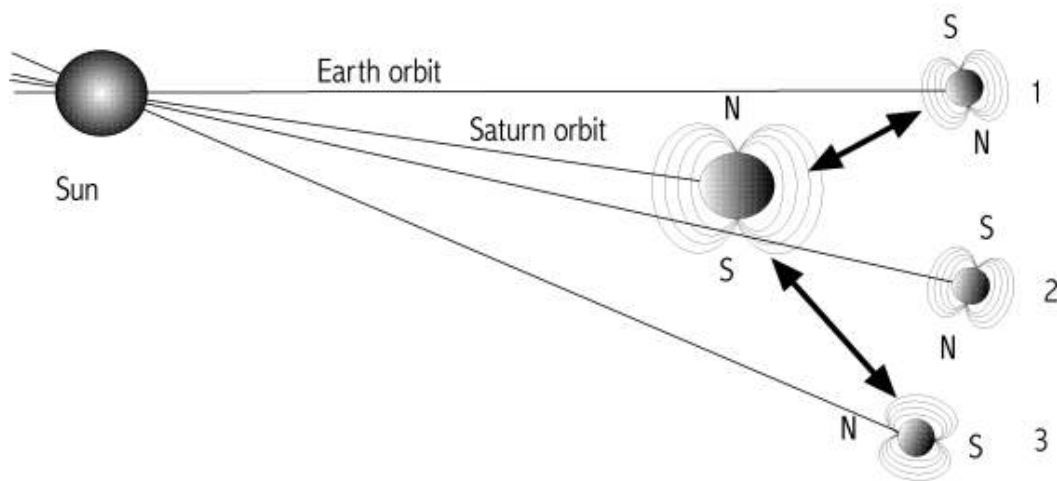
Not included in the above listings is the fact that in all three instances the magnetic field relocated toward the equator or further south or "wandered about":

"At those times [41,000 ya and 34,000 ya], Earth's magnetic field wavered and almost reversed, meaning the north magnetic pole nearly flipped down to become the south [magnetic] pole."

For the last instance (13,000 ya) they write:

"... Earth's magnetic field flickered briefly, causing the magnetic poles to wander crazily across the planet. The north magnetic pole briefly approached the equator before it recovered."

It is suggested that the impinging external radiation and particles induced the change in the magnetic field. (How would this happen?) So, although the three waves of the supernova -- radiation, shockwave, debris -- were suggested as being radically different in their makeup, they each produced nearly identical results. [\[note 9\]](#)



- 1 - Laschamp magnetic anomaly of ca 41,000 bp; Australian megafauna extinction
- 2 - Mono Lake magnetic anomaly of ca 34,000 bp
- 3 - Magnetic anomaly of 13,000 bp; North American megafauna extinction

[Image: Earth's magnetic field anomalies in 41,000 ya, 34,000 ya, and 13,000 ya. Dates are approximate. Not to scale; sizes and distances altered for presentation purposes. N and S designate the magnetic poles, not the geographic rotational poles. Illustration by J. Cook.]

Setting aside the imagined supernova with its three shock fronts, it could be suggested that the events of 41,000 ya, 34,000 ya, and 13,000 ya are simply excursions of the Earth into the plasmasphere of Saturn. In each case the much more extensive (larger and stable) external magnetic field of Saturn was experienced with the result that the Earth's magnetic field attempted to align with this, perhaps somewhat reluctantly because of the remnant magnetism of the crust. Thus with Earth beside Saturn, and at an equatorial level with it, the

Earth's magnetic field would attempt to flip, so that its north magnetic pole would be aligned with Saturn's south magnetic pole.

In terms of absolute values of magnetism, the magnetic field of Saturn and the Earth are fairly weak, compared, for example to Jupiter. I would not have conceived of an alignment of magnetic fields as an index of where Earth would have been located with respect to Saturn, if it were not for the fact that (as will be pointed out in the next chapter) the later alignment of Uranus to Saturn involved only Uranus's south magnetic pole placed directly above the north magnetic pole of Saturn.

The last entry in 13,000 ya was considerably different from the previous two (41,000 ya and 34,000 ya) where the magnetic field simply tried to turn upside down. In the last instance the field "wandered" and "approached the equator." This could be expected if the Earth was below the equatorial level of Saturn, but still well away from its rotational axis. The Earth's magnetic field would attempt to displace itself to lying horizontally, that is, across the equator. As the Earth turned, the north magnetic pole would "wander."

It would seem that the repeated contacts between Earth and Saturn moved lower over the course of some 30,000 years -- at least, in these three instances, and as graphically represented here (and assuming there is some truth in all this). An interesting indication of this is that the presumed electric contact of 41,000 ya in Australia was below the Earth's equator, suggesting that Earth passed Saturn above Saturn's equator. There is no clear record of a land contact in 34,000 ya. But the contact of 13,000 ya, as we know, was some 60 degrees north of the Earth's equator. The passes between Earth and Saturn had progressed, very slowly, from having Earth above the equatorial level of Saturn, to well below.

The oldest records brought forward in the Maya *Chilam Balam* record seven sightings of the "stones" representing God the Father who was attempting to come into existence. Enormous spans of time are indicated between approaches of the stones, although more likely "approaches" should be understood as the time of the leave-takings of Saturn.

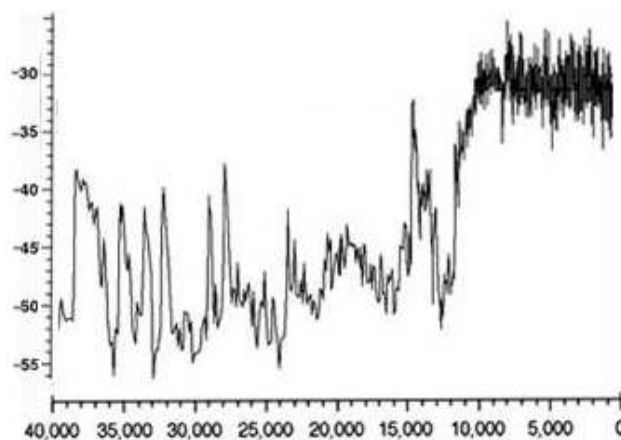
In the chapter "The Olmec Record of the Past," written long before the current chapter, I had suggested that the *Chilam Balam* record might go back 30,000 or 40,000 years. I would now suggest that this record starts in 41,000 BC. At that time Australia and Southeast Asia were assaulted (apparently) by an electric field contact with Saturn. The megafauna of Australia and Southeast Asia went extinct, as did the Cro-Magnon living in the west of Australia.

If this information could be correlated to glaciation and Ice Age temperatures over the last 50,000 years, it might suggest that Earth was captured and released by Saturn seven times before the last event (the Younger Dryas). The temporary capture meets the conditions suggested by Tom Van Flandern, and also follow his suggestion that such capture could be temporary -- although measured in thousands of years. In each case capture would be initiated with Earth and Saturn near the Sun. Releases would happen under the same conditions.

The last interaction with Saturn in 13,000 bp (10,900 BC) most likely represents the time when "things were put in shadow," as stated by the Quiche Maya creation epic, the *Popol Vuh*. The *Popol Vuh* promises to give an "account of how things were put in shadow" but never explicitly gets to that.

The contact with Saturn might have in a position with the Earth well below Saturn and nearly axially aligned (the axes in parallel), and the Earth's magnetic field, as implied from secondary data by Anthony Peratt, was primarily in an up-down direction, or did not exist at all (see a later chapter for this).

The two dates of 41,000 ya and 34,000 ya can be checked against Ice Core Temperature chart and the Italian Bog Temperature chart in the endnotes of a previous chapter. It will also be seen that there are eight sudden peaks in the Greenland ice core temperature after 41,000 ya (shown below), and (on another chart) five Heinrich events (marked H6 to H2) which have occurred since 40,000 ya (H1 at about 13,000 ya was originally not shown), indicating as many Canadian Glaciers skidding into the Atlantic.



[Image: Greenland ice core temperatures (degrees Centigrade) since 40,000 ya. After Gamble.]

What does this mean? If, in concert with Firestone, we can only assign three of the temperature excursions to plasma contacts with Saturn, what was behind the other eight or more global climate changes, lasting 2000 years at times? Except as speculated above, I do not know. And, except for even stranger speculation, no one else seems to know.

That Earth was not entirely expelled from the Solar System with the infrequent contacts is a mystery unless we keep in mind that Saturn, being on an elliptical orbit, might have provided a constantly available source of orbital correction for Earth. Thus the cold periods of the ice ages probably do not have a single cause. They are the result of a number of rapid changes superimposed on long-term slowly repeating cycles. [\[note 10\]](#)

Endnotes

Note 1 --

The real test would be to find sources for the formation of the various carbon forms and radioactive products, which constitute the data for Firestone and the other researchers, other than extraterrestrial. I had started to do this, but did not complete the listing. Firestone admits other sources for many of the molecular products (high temperature, high pressure, electric arcing), and even lists some which would contraindicate extraterrestrial sources.

Then, in 2010 and 2011, claims to a comet impact started being disputed with a series of articles which generally took exception to the supposed comet debris (buckyballs, nanodiamonds). To be implied from this missing or incorrectly described secondary data is that perhaps there was no comet. Nevertheless, all the signs of a massive impact remain.

Since then Allen West has lost his reputation. In an article titled "Comet claim comes crashing to earth," in *Pacific Standard Magazine* (May 14, 2011), Rex Dalton wrote:

"West is Allen Whitt -- who, in 2002, was fined by California and convicted for masquerading as a state-licensed geologist when he charged small-town officials fat fees for water studies. After completing probation in 2003 in San Bernardino County, he began work on the comet theory, legally adopting his new name in 2006 as he promoted it in a popular book. Only when questioned by this reporter last year did his co-authors learn his

original identity and legal history. Since then, they have not disclosed it to the scientific community."

-- <http://www.psmag.com/science/comet-claim-comes-crashing-to-earth-31180/>

That doesn't mean that West doesn't know what he is doing. The problem with this study is not West's hazy qualifications, but the fact that truly, there never was a comet or a comet impact. The critics are pointing that out, and if they have their way, the whole of the climate change at the Younger Dryas, the extinction of the mammoths, the demise of the Clovis hunters, and all the wrong Carbon-14 dates will be thrown out also. Some of the claims quoted at psmag.com as representing the counter arguments, like "the American Buffalo survived," are just astoundingly ignorant for "scientists."

[\[return to text\]](#)

Note 2 --

These oval forms also appear near Lake Tanganyika in Africa.

[\[return to text\]](#)

Note 3 --

On molten mountaintops and ridges, see Dennis Cox, who has investigated altered landforms, presented at <http://sites.google.com/site/dragonstormproject/>, and attributed by him to the event at the start of the Younger Dryas. Cox inadvertently adds in the later burn marks due to Mars in the 8th and 7th century BC in northern Mexico and southern USA.

See also Michael Steinbacher, "Notes Toward an Electric Catastrophist Model for Geology" (EU 2014 Conference, March 22, 2014, and <http://www.eu-geology.com/>).

[\[return to text\]](#)

Note 4 --

I wrote up the effect of an arc (or as it turned out, a series of arcs) at the surmised location of the Great Lakes before checking bathymetric data for the Great Lakes. Seems that my initial guess was correct. I knew that they were deep, but they turned out to be extremely deep, and primarily consist of circular

depressions -- looking like bored holes.

[\[return to text\]](#)

Note 5 --

It has to be suggested that the electric field contact happened during daylight, so that Earth would have been on an outer orbit with respect to Saturn. "Daylight" would account for the interrupted slaughter and removal (sawing off) of a single mammoth tusk which was abandoned at the edge of the ancient waterhole and swamp at the Blackwater Draw archaeological site in New Mexico. The suggestion for this coincidence is related in *The Cycle of Cosmic Catastrophes*.

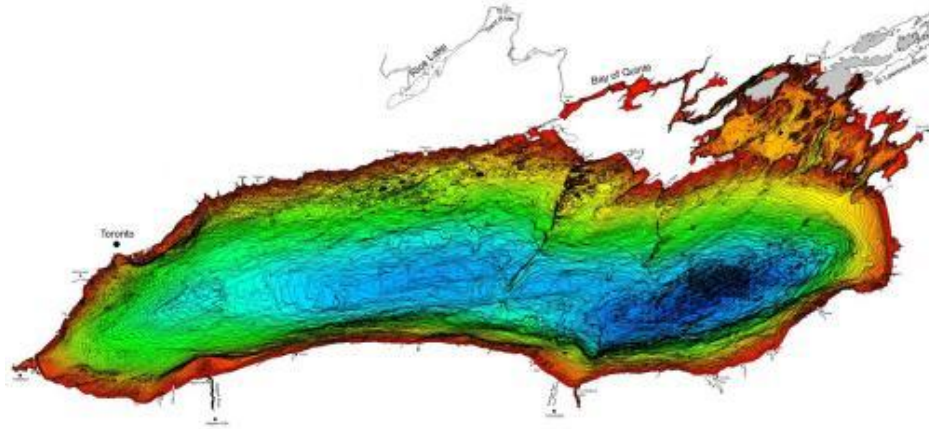
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Note 6 --

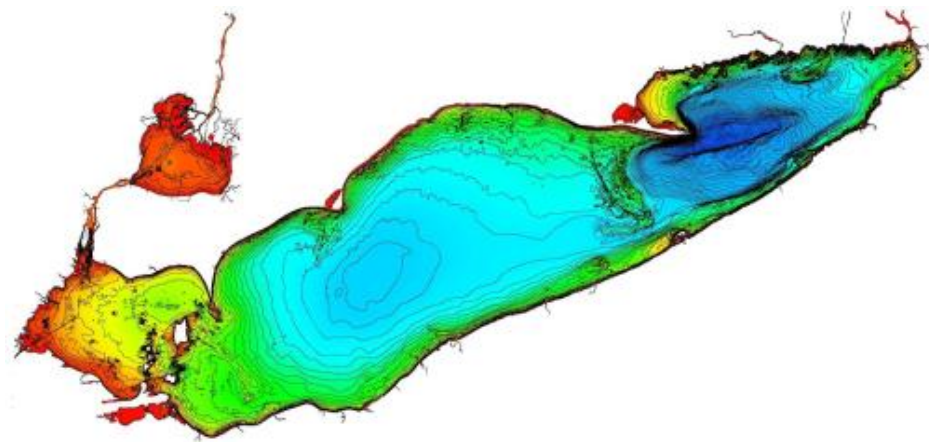
Bathymetry data for the Great Lakes follows. The color-coded scale differs for different lakes and lakes are not shown in correct scale to each other (but sizes and depths are listed below). Generally Prussian blue means "deepest" region. All bathymetric images after glerl.noaa.gov.



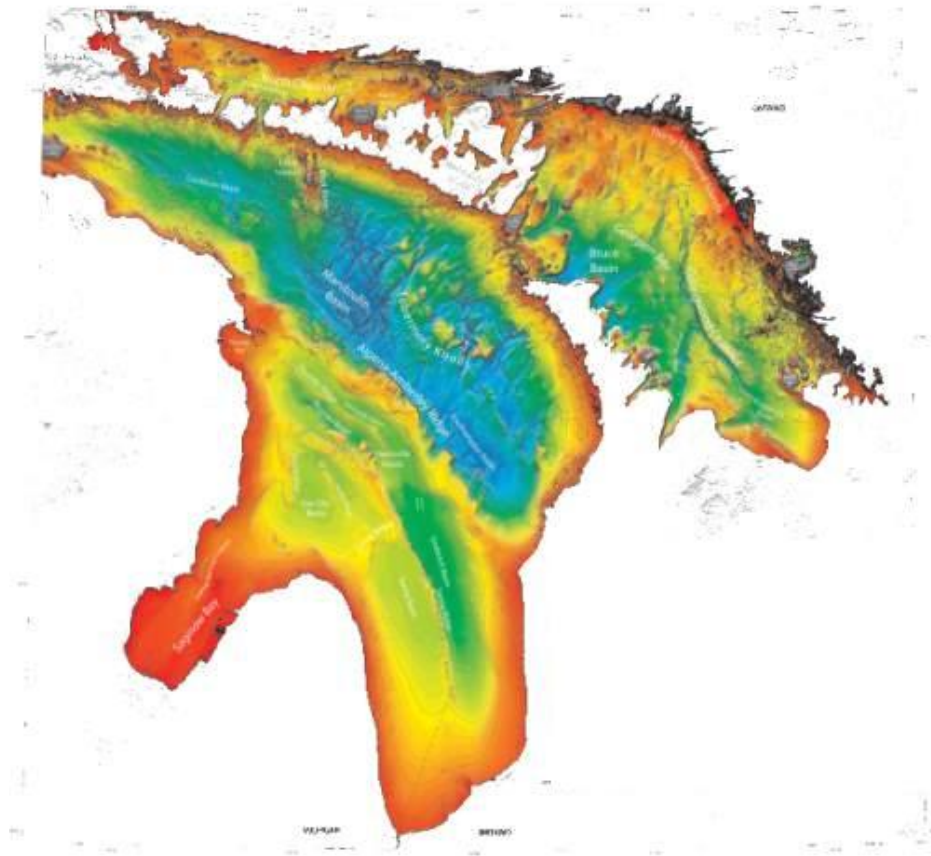
[Image: Relative sizes of the Great Lakes and surrounding states. After Great Lakes Information Network]



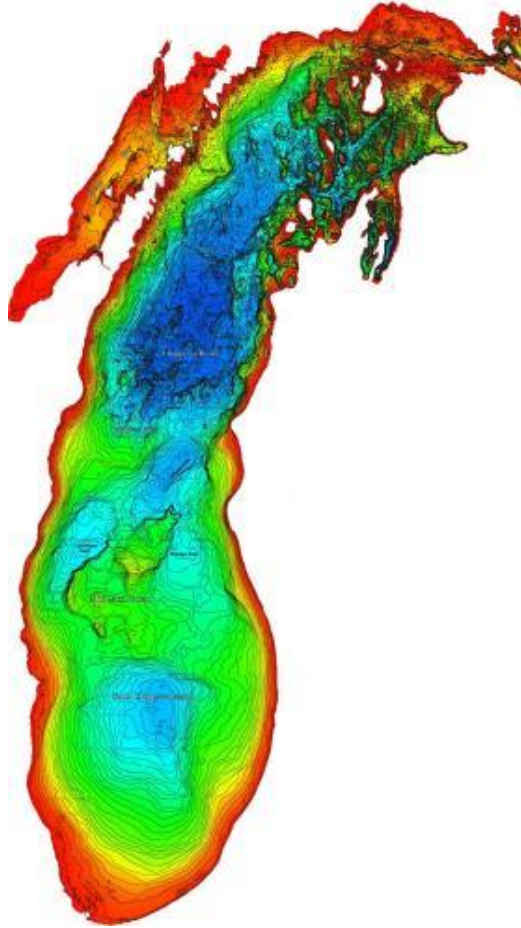
[Image: Lake Ontario; 193 miles long; Maximum depth 808 feet.]



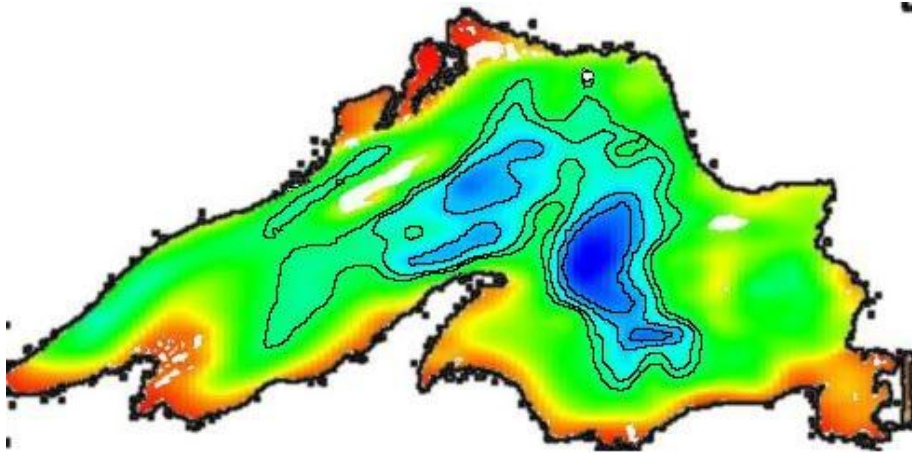
[Image: Lake Erie; 240 miles long; Maximum depth 210 feet.]



[Image: Lake Huron; 206 miles long; Maximum depth 770 feet.]



[Image: Lake Michigan; 307 miles long; Maximum depth 923 feet.]



[Image: Lake Superior; 350 miles long; Maximum depth 1332 feet.]

The total time for the series of arcs should have been about an hour under normal conditions, since the locations span about a time zone. But the

gyroscopic reaction of the Earth would have brought up the west to move faster than usual toward the east at this location (45 degrees north latitude).

[\[return to text\]](#)

Note 7 --

I have since become aware of nearly the same analysis, but for tornadoes, by Peter Thomson, found at [\[http://www.peter-thomson.com/tornado/\]](http://www.peter-thomson.com/tornado/) and more vividly illustrated.

[\[return to text\]](#)

Note 8 --

The original data is from a paper by Antje (A.H.L.) Voelker, et alii, "Correlation of marine ^{14}C ages from the Nordic Seas with the GISP2 isotope record: Implications for radio-carbon calibration beyond 25 ka bp" [kiloyears-ago before-the-present] (1998), *Radiocarbon* v 40.

The unexplained dip at 16,000 bp might reasonable equated with the cold snap of the Older Dryas, thought to be only 100 to 150 years in duration, or more likely with the Oldest Dryas, an ill-defined cold period from approximately 18,000 bp to 15,000 bp.

[\[return to text\]](#)

Note 9 --

There is no thought of applying electric field theory, or suggestions that the magnetic field would have changed with a change in the magnitude or direction of an external electric field, or for that matter, an adjacent magnetic field. Electric considerations are completely absent from astrophysics. Yet what we have here (in Firestone's book) is the implicit admission that the Earth's magnetic field is influenced by something external. This is generally also not allowed in geoscience.

[\[return to text\]](#)

Note 10 --

I have seen claims by oceanographers that a Fourier analysis of the oceanic core data accurately reflects the Milankovitch climatic cycles -- the climatic response of the Earth to the inclination of the axis, the precession of the polar axis, the precession of the orbit, and other factors -- all based on current

conditions. Fourier analysis is a method of resolving an arbitrary waveform (or time series) into an approximate set of sinusoidal frequencies.

"When Fourier analysis was applied to deep-sea records in 1975, it emerged that the oxygen-isotope series contained strong cycles with periods near 100,000 years, 41,000 years, and 23,000 years. These are precisely the periods expected if Earth's orbital elements (eccentricity, obliquity, and precession) govern ice-age climates, as proposed by Milankovitch Theory. Thus, there could be no more doubt that orbital elements had to be considered as important drivers of climate on long time scales."

-- http://earthguide.ucsd.edu/virtualmuseum/climatechange2/03_1.shtml

Other researchers are far less convinced. It is as easy to say that evidence for the Milankovitch climatic cycles *exists*, as it is to suggest that it only *might* exist. The highs and lows in climatic conditions would have to appear at times equal to the sums and differences of the three cycles listed above. They do not. That is not to say that there are not some very large time cycles involved, but these would, as I pointed out in the text, change over time.

In fact, one does not need Fourier analysis to pick the intervals mentioned above (100,000, 41,000, and 23,000 years) from the data. The periodicity can be visually identified, but the intervals only approximate the current estimates of eccentricity, obliquity, and precession. The Fourier analysis also does not explain the series of cold and warm periods of the last 100,000 years and does not explain why all such variation completely disappeared from the data 10,000 years ago. Also left unexplained is the steep slope of the transitions from a cold period to a warm period and the reverse.

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Chapter 10: Time Line and Gimbutas.

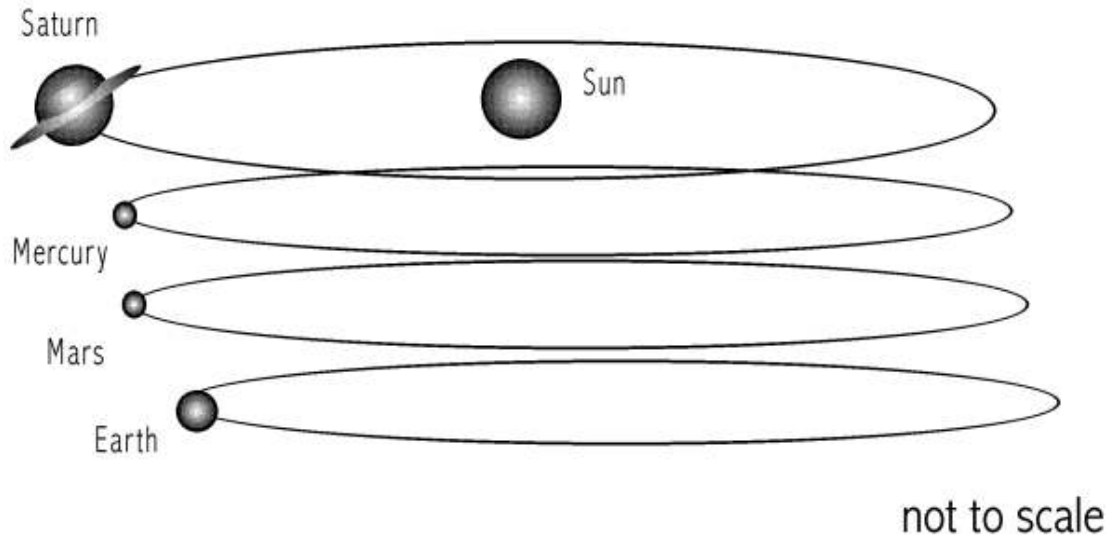
\$Revision: 42.5 \$ (gim.php)

Contents of this chapter: [\[The Hypsithermal\]](#) [\[Chaos and the Birds\]](#)
[\[The Saturnian Planets\]](#) [\[Venus Figurines\]](#) [\[Neolithic Figurines\]](#)
[\[Objections to Gimbutas\]](#) [\[Endnotes\]](#)

The Hypsithermal

From about 7000 BC (when the shadowed skies of the Younger Dryas had cleared) the Earth experienced a climatic condition known as the Hypsithermal (also called the Holocene climatic optimum). Warmer conditions prevailed everywhere. The Hypsithermal lasted to about 3000 BC, followed by a similar mild climate extending to about 2000 BC.

What had ensued was a truly strange situation. Earth's orbit was entirely below Saturn's orbit, and thus below the Sun for all of Earth's year. At first, this would have involved the relocation of the Earth some 10,000,000 miles (16,000,000 km) or more below Saturn and below the equator of the Sun. The Sun would not be at one of the two centers of the ellipse which normally defines a planet's orbit. The Sun would remain above the equator as the Earth traveled on an orbit below Saturn. The northern hemisphere would have received more sunlight year-round. The world would not have been exposed to the drastic changes in seasons we experience today. Thus, as the shadow of the Younger Dryas lifted, the climate would have improved. But not everywhere: the southern hemisphere would have remained in a fall and winter condition. [\[note 1\]](#)



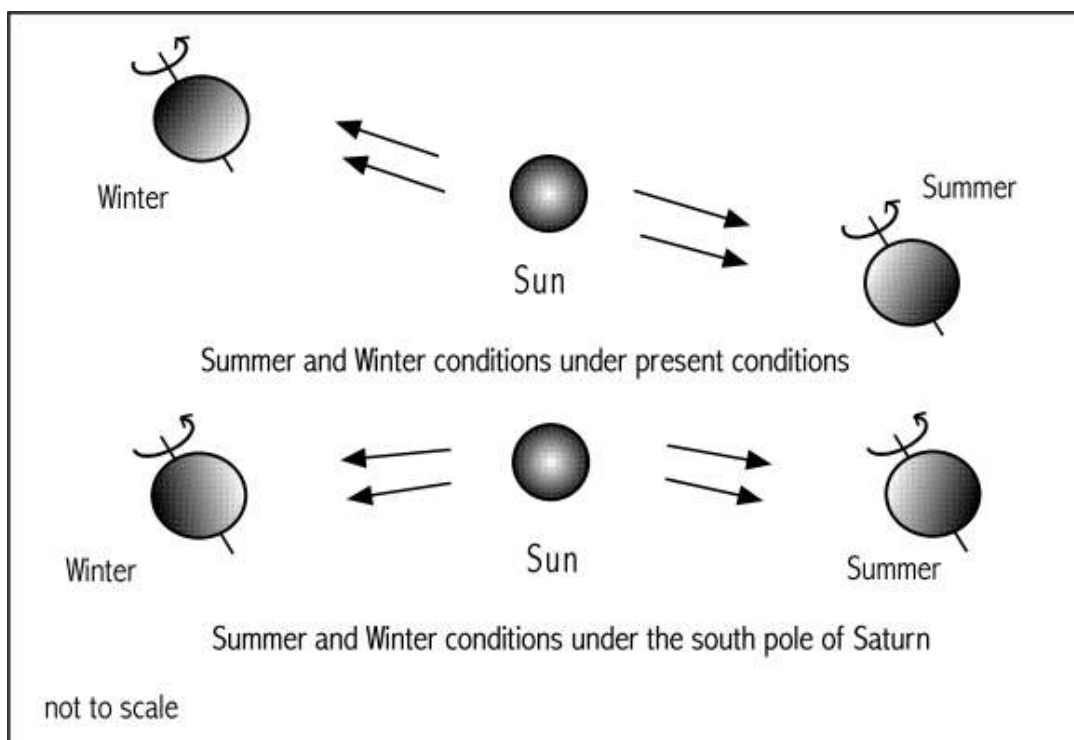
[Image: Saturn with Mars and Earth; illustration by J. Cook.]

The Hypsithermal is somewhat of an anomaly, for if Earth were only a few million miles below Saturn, there would have been only a few degrees difference in the dislocation of the Sun from the equator. But instead we see an apparent northerly relocation of climatic zones on the order of 10 to 15 degrees of latitude. This can be found from climatic descriptions during the initial few thousand years of the Hypsithermal. This presumes that the Sun stood some 10 or 15 degrees higher in the sky, so that the tropic zone in Africa was defined as the region of the Southern Sahara. To achieve this condition, the Earth would have had to have been some 10 or 11 million miles (16 million km) below the orbit of Saturn, a considerable amount. This might have been an initial condition at the start of the Younger Dryas. As time went on, the Earth would have lifted in latitude with respect to Saturn, so that by 4077 BC the separation might have amounted to only 2 or 3 million miles.

At the time of this writing I had already posited the movement of planet Earth from a location at an equatorial level of Saturn (or somewhere adjacent and below) to a position considerably below the south pole of Saturn, which would have changed the northern climatic zones. I then happened on Charles Ginenthal's essay "The Extinction of the Mammoth" (1997) and at once realized that the evidence he presented matched my expectations for the climate on Earth during the period after Earth had moved in its orbit below the Sun after 10,000 or 9000 BC. [\[note 2\]](#)

Ginenthal deals mainly with the Arctic climate, which, after 9000 BC, warmed enough that trees and grasses grew in the Arctic region and the polar and subpolar lands were populated with herds of mammoth and other large animals (rhinoceroses, horses, beavers, 12 species of elephants). The preceding ice ages had ended about 2000 years before the Younger Dryas and before it got cold again, and the Arctic had consisted earlier of frozen ground covered at best with tundra, as it does today.

There are parallel changes in the Earth's climate during this period, often presented as global, although they clearly are not global. Climatic changes have been studied in the context of today's condition, and it has thus assumed that the changes represent a general warming of the whole Earth. Investigations have also mainly concentrated on the northern hemisphere and the tropics. All of the available data on the climate during the Hypsithermal can be accounted for by understanding that, with the sun now continuously high in the skies of the northern hemisphere, the "tropic" zone moved north. I would estimate that the tropic zone moved between 10 and 15 degrees of latitude north. Thus the Southern Sahara received the moisture usually reserved for the tropical zone, a dry zone developed at about the level of the Northern Sahara and further north into the Mediterranean region, and the temperate zone moved up into the sub-arctic regions. [\[note 3\]](#)



[Image: Winter and summer during the Hypsithermal; illustration by J. Cook.]

Data from the Hypsithermal period, in fact, indicates that the tropical regions of Africa and South America (the Amazon region) received between 30 and 70 percent less rain than today. However, most of the Sahara bloomed, except the far northern portion, with large lakes and flowing rivers, and was populated by a great variety of tropical animals (and humans). The period is known today as the "Green Sahara" period, starting in about 8000 BC. [\[note 4\]](#)

The Levant fell in the dry zone and was completely depopulated for periods of hundreds of years. Southern Europe fared only a little better. Northern Europe, Asia (Siberia), and Northern America (Canada) experienced a temperate climate which extended into the Arctic.

All the northern glaciers melted rapidly, except for the glaciers on high mountains. These mountain regions include all of Greenland, the mountains in the south of Alaska and Western Canada, some mountain regions in the far north of Norway, and some of the high Alps. The glacier in Antarctica did not melt, not just because Antarctica is mountainous, but because the South Pole remained in almost complete darkness.

Below Saturn

What all this suggests is that over a period of some thousands of years, Earth had slowly moved further and further down beside (and below) Saturn. The Earth entered the flower-like extension of Saturn's lower coma in 10,900 BC, as we know from the destruction of North America at that time.

I'll discuss the movement of the Earth through this lower plasma of Saturn in a following chapter. The visual effects have been presented by Anthony Peratt, and the initial aspect can be accurately dated.

Chaos and the Birds

I should note the frequent depiction of seated birds in late antiquity (6000 or 8300 BC to perhaps as late as 4077 BC), culminating in the seated falcon on top of the Egyptian serekhs -- the name labels of the pharaohs.

Long before 10,900 BC Saturn would have been seen starting to drift toward the north side of the sky, seen from just above the Earth's equatorial, to eventually

be seen rotating in a 5 degree circle around the celestial North Pole. "Revolving without cease," as more than one creation myth records. The visual effect of this, at any rate, would have been to see a large object travel from east to west across the sky on a daily basis for upward to 3,000 years before 10,900 BC. This is the Egyptian Horus the Hawk, as a seated bird seen in profile -- not with spread wings. We would expect many representations in miniature forms, and in fact there seem to be millions of seated bird forms throughout the world, some of which can be fairly closely dated. [\[note 5\]](#)

As Earth came closer to Saturn, the distinct form of a hawk would have been replaced by a swirling clouded sky. (The coma of Saturn may have come and gone periodically.) As Earth took up a station below Saturn, the "egg" (or first probably the duck, as the Egyptians identified it) appeared in the fluffy cloud above the north horizon. It has been noted repeatedly in mythological sources that the egg "rotated without cease." This describes the path of the egg in the sky, not its rotation about itself, which probable could not be discerned. This condition would have lasted some 700 years, says the *Kalevala*.

As the Finnish *Kalevala* records:

*"Ilmatar, the virgin of the air,
leaves the loneliness of the sky
and moves down to the sea,
where the wind impregnates her.
She drifts upon the waters for 700 years."*

The same ceaseless rotation is recorded for Saturn, after it lights up in 4077 BC, in Vedic and Mexican sources. The Maya *Chilam Balam* states:

"He shall walk abroad giving the appearance of one drunk, without understanding."

The drunk walk is best explained by suggesting that, although Earth was located below the pole of Saturn, the rotational axis of Earth and Saturn did not coincide. Thus from Earth's perspective, Saturn wobbled about in the sky on a daily basis. The Quiche Maya *Popol Vuh* maintains a daily rising and setting of Saturn out of the sea. Ilmatar also is noted as moving in a giant circle. The interaction of the magnetic fields of Saturn and Earth might have been sufficient to eventually move the spin axis of Earth to be coincident with the spin axis of Saturn. However, this apparently never happened. What seems more likely is that Saturn, Mars, and Earth all had the same *period of rotation* before 3147 BC.

After Earth joined Saturn on an elliptical orbit, the planet Jupiter would have been seen periodically in the night sky, as when Earth was on the part of the orbit which took it inside the orbit of Jupiter. Jupiter, when it was seen in the sky, remained at the level of today's ecliptic, although, as seen from Earth, this would have been in the skies above the equatorial. Jupiter would have looked like a Moon, a full lighted (or nearly so) round globe, somewhat smaller than the Moon looks today. Since Earth traveled below the ecliptic, Jupiter would have looked like an egg. When Earth was outside Jupiter's orbit only the lower portion of Jupiter would be seen (in the day sky), consisting of two upfacing horns like cattle. This last image is the "bull of heaven." [\[note 6\]](#)

There are ample sources in mythology which confirm this confusion of Jupiter with the Moon. Hesiod, one of the first writers in Greek, in circa 650 BC places the genesis of the Moon even before that of Venus and Mars. The actual Moon's birth, from out of the bloodied foam of the "sea" where the genitals of Uranus (the God, "father sky") had been tossed, happened in 2349 BC, when the Absu turned blood-red. Hesiod wrote that the genitals of Uranus "were swept away over the sea a long time." Egyptian myth also talks of the loss of the genitals of Osiris directly after the collapse of the Polar Configuration. Similarly, the semi-historical script at the Temples of the Cross in Palenque, Mexico, in AD 700, notes that the Moon was born before the beginning of the current era, before 3114 BC. This last, however, was Jupiter seen in the neighborhood of Earth and about the size as the later Moon. This is also what Hesiod has reference to.

The Saturnian Planets

This model of planetary interactions, as it has been developed thus far, is obviously speculative. The locations and orbits are imagined possibilities, constrained by the laws of physics, and matched against the very few pieces of data we have from the past (which are all too easily misunderstood). The plasma interactions, even if they did not happen exactly as suggested here, were real, nonetheless. This model would exist entirely within the imagination, one among other cosmological postulates, if it did not lead directly to the imagery Talbott took as evidence for the Saturnian Polar Configuration, and the prior work by Santillana and von Dechend.

Talbott's Saturnian Polar Configuration was, as a matter of fact, largely ignored for some 20 years, mostly because no physical system seemed to answer the demands of the imagery. But since the involvement of Thornhill in the 90's, much has changed. Despite objections from some astrophysicists, a model held

together by electric conditions works to explain Talbott's imagery. That is not to say that there have not been many other alternative models suggested.

I should also point out that Anthony Peratt's investigations of petroglyphs worldwide, the results of which were presented in technical papers in 2003 and 2007, largely substantiated the positioning of Earth in the lower coma of Saturn in the period of 10,900 BC to 8347 BC (my dates) -- substantiated, that is, by the scenario developed here, not by Peratt. The information on petroglyphs was presented by Peratt as a massive aurora generated by the Sun, although presented as a simile with admitted discrepancies, as he has noted. I will discuss the "Peratt Column," as it has become known, in a later chapter.

Meanwhile, the *imagery* of the polar configuration itself has remained unchallenged and the documentation has been continuously expanded with information from additional sources. In fact, this imagery worldwide stretches back in time to 6000 or 7000 BC, and ultimately into the European Upper Paleolithic of 40,000 BC.

Venus Figurines

Throughout the Upper Paleolithic and the Neolithic, from about 40,000 years ago, Saturn was seen by humans and recorded in sculptural artifacts, the so-called Venus Figurines. These were carved by the thousands during the Upper Paleolithic, and in hundreds of millions in the Neolithic. These hand-held sculptures were carved, I should point out, by the same people who decorated their spear-throwers with realistic representations of horses, deer, fish, and birds. In Western Europe these same people decorated 300 caves with images of herd animals, but not a single realistic representational painting or carving of a human -- the only exception in this being the grossly fat or distorted Venus-Figurine sculptures.

What was seen in the skies during these 40,000 years was not just the planet Saturn, but a grouping of four (initially) planets stacked one above the other -- Uranus, Neptune, Saturn, and Mars, from top to bottom. This stack stood "upright" in the skies, so that each of the planets traveled on a nearly identical orbit around the Sun. [\[note 7\]](#)

How did these planets become grouped together? Since all indications are that Saturn had been on an elliptical path close to the Sun for perhaps as long as ten million years, sooner or later Saturn could have swept up the other planets

traveling on close orbits around the Sun. I am, in fact, suggesting that this happened over the course of the last two and a half or three million years. There are no human witnesses before that time, and even before about 34,000 years ago there were no reliable artists recording strange objects in the skies.

The other planets would be electrically attracted as soon as their plasmaspheres touched -- because all the Solar System planets were effectively negative in relationship to the large positive charge of Saturn. This condition would soon be acted upon with a charge equalization in the form of a thunderbolt -- of which the earth shows a number of instances, among them the Grand Canyon, the Mediterranean Sea, and a series of lakes and deserts stretching across Asia.

It is not at all clear how these extra planets could remain in a subpolar locations with Saturn, except to suggest that each formed its own protective plasmasphere, and thus became electrically isolated from Saturn. Despite the isolation, a flow of plasma (electrons) would still spread over the outer surface of the plasmasphere of the secondary planets and made its way to the planets via their magnetic poles. The same means would apply to suprapolar planets.

As suggested in Appendix B, "Celestial Mechanics," Neptune was probably located 800,000 miles (1,300,000 km) above Saturn, and Uranus was located another million miles further above. Mars was below Saturn some distance, but I have no reasonable estimate of the distance. These separation distances can be found with good accuracy from today's orbital inclinations.

Late in 2009 I finally realized that there were two planets below Saturn and above Earth, and could identify the additional planet between Saturn and Mars as Mercury. David Talbott had held this as a condition of the polar stack, but had identified the planet between Saturn and Mars as Venus. (He also remained unaware of the planets above Saturn.) My objection to identifying the lower in-between planet as Venus is that Venus was always depicted outside of Saturn with a plume-like connection to an equatorial or polar location. At one time Talbott had also identified Venus as circling Saturn at the edge of its ring system or beyond. I certainly agree with this. I would suggest from this, and from the extreme surface temperature of Venus, that it was created in the plasma outpouring of the nova event of 4077 BC.

Introducing Mercury into this configuration at a later date solves numerous problem conditions which would otherwise remain mysterious. I will touch on these as required in later text and later chapters. But at this point I should at

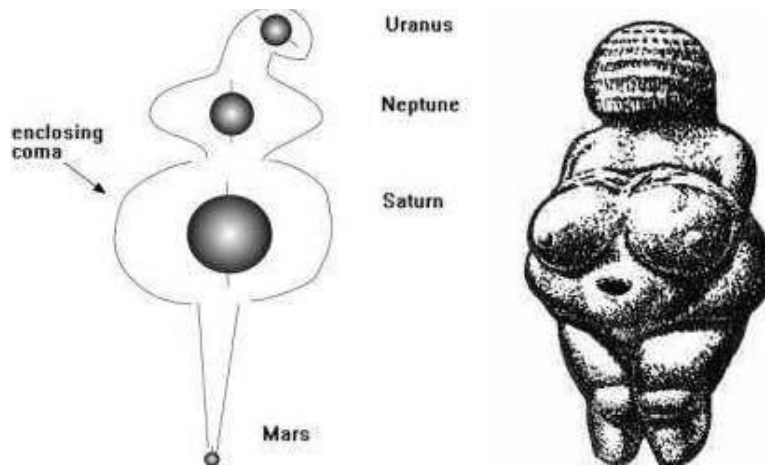
least suggest that I think Mercury only became part of the stack of planets late during the Magdalenian period (17,000 to 14,000 ya).

Mars was probably located very close to Saturn initially and would have moved away by a few million miles by the time the first Venus figurines were carved (detailed below), for the feet of the figurines are located an appropriate distance below the trunk. If Mercury indeed was added to the polar configuration late, then it would need to have been inserted between Saturn and Mars.

The shaping of Saturn's electric field by its magnetic field might have been sufficient to relocate each of the planets into positions above or below Saturn's poles. Neptune traveled directly above Saturn, with its spin axis aligned with Saturn, and its south magnetic pole facing Saturn's north magnetic pole. Above this traveled Uranus, tipped up at 10 degrees from the horizontal so that its upper geographic pole (which is the magnetic south pole) was located directly above Neptune's north magnetic and geographic pole. The other pole, away from the centerline of Saturn and Neptune, tilted down 10 degrees. This downward tilt will show up in the tipped-down heads of millions of "Venus figurines" throughout the world over a period of more than 25,000 years.

The magnetic alignment had nothing to do with holding the planets in position, as might be suggested from the fact that the magnetic poles attracted, rather than repelled in this alignment (at least, I would think so). It probably has more to do with shaping the flow of plasma from planet to planet, and thus the electric fields experienced by each of them.

The planets were surrounded by a glow mode plasma, due to the attempt at charge equalization by Saturn with its surroundings. The magnetic fields shaped the coma, forcing a pinching of the glow mode plasma in the gaps between the planets.



[Image: left: Saturn with Neptune, Uranus, and Mars enclosed in plasma; right: Venus of Willendorf; Venus after a photo by Don Hitchcock, illustration by J. Cook.]

Seen from a low angle Saturn and its three planets (at the Gravettian, 28,000 to 24,000 years ago) would look like a fat woman. Saturn and its bulky coma constituted the belly and buttocks. The connecting coma surrounding Neptune, accentuated by toroidal belts surrounding its equator, providing the imagery for two large breasts. Although these planets rotated, the image of two bulbous breasts would remain the same, as did the view of the fat belly. The head was modeled by Uranus, which, because it rotated in the plane of the ecliptic (Uranus lies nearly on its side), did not seem to move except as a single rotation (as part of the figure) during the course of the Saturn's path around the Sun.

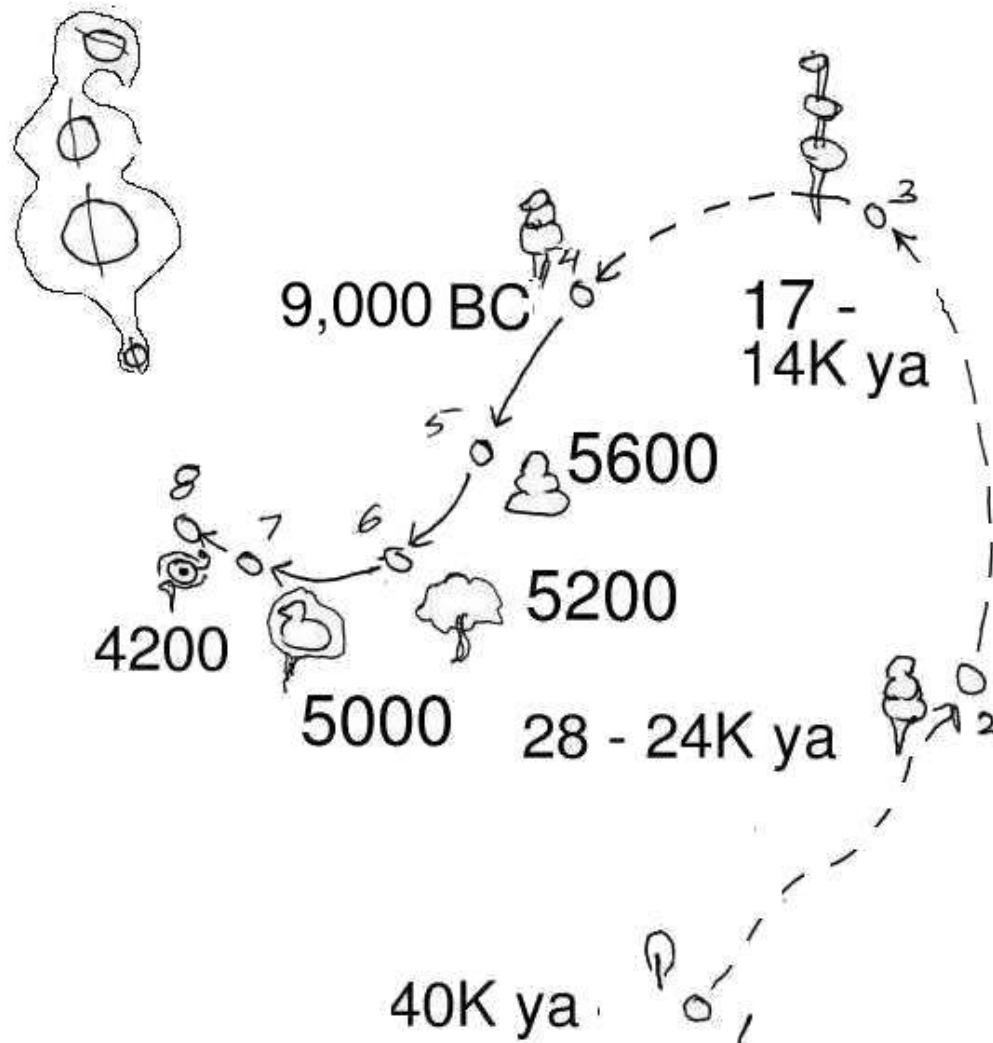
The Venus of Willendorf represents the archetype of Venus Figurines. Although it was found during excavation for a railroad bed, it was instantly dated to 28,000 years ago from its form. The face, typically, is covered with hair, with the head tilted forward. The hair is an outstreaming of plasma in glow mode from the north magnetic pole of Uranus. The 10-degree forward tilt of the head remains as a distinguishing feature for nearly all of the Venus-figurines for the next 25,000 years.

The legs are formed by a stream of plasma to Mars, far below Saturn, but the feet are never shown (or broken off as on the Willendorf Venus). The plasma stream to Mars may have been bifurcated, which would make the dual streams look like legs. The coma at Mars is of a much smaller dimension, not only because Mars is small compared to Saturn or the other planets, but because Mars has no magnetic field nor any exterior layer of liquid or gas, and thus could not support much of a coma.

How large was the image of the Saturn configuration in the sky? All the figurines are of a dimension which can be easily held in the palm of a hand, 3.5 inches high. Held at arm's length such a figurine can be compared to Saturn as seen in the sky. The Saturnian planets would be about 29,000,000 miles (47,000,000 km) away under the condition of comparing the hand-held figurine to a stack of planets at least 2.8 million miles high. [\[note 8\]](#)

Time line

The progress of the location of Earth with respect to Saturn can be traced through the approximate dates of various forms of the millions of figurines over time. In the diagram below I have schematically placed Earth at various locations further away and closer to the Saturnian planets, and at various levels, in order to represent the view of Saturn from Earth. An important consideration is the foreshortening which at times condenses widely spaced planets to a view where they are effectively lumped together.



[Image: Saturn depicted or recollected from various vantage points during the Upper Paleolithic and the Neolithic. The view is edge-on to the orbits of the planets. The "path" of Earth presents differing vantage points over time. The southern ball plasmoids (see later text) after 10,900 BC are not shown. Illustration by J. Cook.]

The series of positions shown above is not the path of planet Earth. There were probably periods of thousands of years where Earth's orbit did not come anywhere near Saturn. Only the last few positions (4 to 8) were sequential, even though these were spaced over 4000 years. It is also important to realize that Saturn was only seen in the skies periodically. Only since about 9,000 BC was Saturn seen continuously. If the sight of Saturn had the constancy of the Sun, there would have been no record made at all. The shapes mentioned here are described in more detail further below.

The end-points should be obvious. In the remote past Earth saw Saturn from a considerable distance, and probably only periodically. The slow progression of changes in the relative distance between Earth and Saturn ends with Earth positioned somewhere below the rotational axis of Saturn. Intermediate positions must follow the sequence of depictions of Saturn which can be ascertained archaeologically from the shape of the figurines, and at least approximately dated. [\[note 9\]](#)

Although the diagram above was made from archaeological considerations only, it would be of interest to compare this with concurrent glaciation and climatic conditions. Additionally, the data derived from an investigation of some 4,000,000 petroglyphs worldwide by Anthony Peratt, published in 2007, fits the archaeologically based chronology presented here. Some of this is noted below, and more follows in a later chapter.

- **(1) 40,000 years ago:** The "cup and tail" marks are found inscribed on rock faces worldwide. These are impossible to date accurately, but seemed to have appeared at various times between 40,000 and 20,000 years ago.

I have personally wondered at these worldwide incised "cup and tail" marks -- the earliest and one of the simplest rock carvings. This is a nearly closed inverted "U" shape, with a line scribed out of the center into the space outside the cup. When oblong-shaped rather than circular, these are often called "vulva" marks. Why would people, on every continent, carve the same figure on rock walls and horizontal rocks, and in such great profusion?

The ubiquitous cup and tail carvings predate any other depictions of remote antiquity and are found absolutely everywhere throughout the world. These point to an earlier time long before the Earth was captured by Saturn. The marks look like a distant planet in arc mode plasma discharge to a small planet below its south pole.

This most likely was Saturn in plasma contact with Mars below, as it certainly was at a later date. I am suggesting this because most of what I have seen of the cup and tail marks have the tail pointing straight down or at an angle, but never directed up or horizontal. If the tail had represented a cometary-like plasma tail, it would have faced away from the Sun, and been seen sideways in the sky most of the time.

As seen and depicted, the imagery would define the mark as coming out of the cup. Thus we are looking at a far distant view of a plasma (coma) surrounding Saturn with a brilliant "tail" extending to Mars below. The same arc mode extension to Mars would especially be noticed against the dark night sky, of course. [\[note 10\]](#)

The tail is thus an electric arc from Saturn which struck the northern hemisphere of Mars, lasting from before an estimated 30,000 years ago. The arc must have been absolutely gigantic, for it completely etched away the northern hemisphere of Mars to a depth of three miles (5 km), leaving only a smooth surface. (The Grand Canyon of the Colorado is one mile deep.)

It is quite possible, however, that this region was occupied by an ocean -- signs of which have been detected. If there had ever been any life on Mars it would have been completely obliterated during the 30,000 years of the electric arc (described by humans, as I'll detail later), a condition which may, in fact, have extended much further back in time. Boiling off an ocean would have caused gigantic billows of steam. As these likely condensed to rains everywhere else on Mars away from the northern hemisphere, there should be evidence of torrential floods and water damage. Except as this evidence is confused with the much later damage from electric arcing, this is indeed the case.

- **(2) 28,000 to 24,000 years ago:** This is the era of the classical Venus Figurines of the Gravettian period of the Western European Upper Paleolithic: a Fat Lady, footless and faceless. For some six to ten thousand years following this period, these disappear from Western Europe. The painted caves of Southwestern Europe, by the way, date from 32,000 years ago. The initiation of new caves never let up during all of the time from 32,000 ya through about 10,000 ya. [\[note 11\]](#)

The Cro-Magnon first show up in Europe 35,000 ya in Carbon-14 dates, which is 45,000 ya in calendar years (Romania). The finds at Cro-Magnon in France were dated (Carbon-14) to 28,000 ya. It is these people who have provided the first records of what the Fat Lady in the sky looked like (and decorated the limestone caves). It is followed shortly (more or less) with the start of the last significant glaciation, from 27,500 ya to about 14,500 ya. This suggests that Earth might have been carried along by Saturn for an extended period of time. Possibly during a very long portion of this Saturn simply could not be seen because of an enclosing coma which also enveloped Earth.



[Image: Three figurines from the Western European Gravettian culture, 27,000 to 24,000 ya. In buff or amber limestone; left to right: 3.5", 3.25", and 1.75" high. After Denis Vialou, Prehistoric Art and Civilization (1996)]

The images of women simultaneously steatopygic and pregnant, or at least with body parts which jut out horizontally below the belly or trunk, suggests one or two planets off center below Saturn. As I suggested in the previous chapter, the rotational axis of the Earth probably never lined up with the rotational axis of Saturn, even though the interaction of the two planets lasted thousands of years. This would be true for other planets also.

What is seen in some of these images (but obviously not all of them), I suspect, is a planet which had recently been captured into a subpolar orbit and which would not assume a symmetrical location with respect to Saturn for thousands of years. I would assume that this was Mercury. I would also suggest that at this time Mercury would likely still have had a substantial atmosphere, and thus be capable of sustaining a large coma. [\[note 12\]](#)

- **(3) 17,000 to 14,000 years ago:** The figurines reappear in the Magdalenian period. They are elongated and distorted, although they still basically look female. To achieve this look, Earth had to be in an orbit such as to bring it nearly level with the Saturnian planets, thus showing the true separation between the planets.

After 14,000 ya (12,000 BC) the glaciers retreated, although they did not disappear. It did get considerably warmer. Then in 10,900 BC Saturn passed Earth at a position somewhat below its equatorial level, and Earth received a tremendous electric field shock which destroyed most of North America. North

America burned down and the large grazing animals disappeared worldwide. This started the 1500-year extreme cold period of the Younger Dryas, lasting to about 9,000 BC (8347 BC). During this period Earth ended up located somewhere below Saturn. Because of the shadowing cover of dust in the stratosphere, it would not be until about 9000 BC before Saturn would reappear, and then Saturn was mostly obscured by its coma, which also enclosed Earth.

- **(4) after 9,000 BC:** After about 9,000 BC, as Earth started to move more directly below the center of Saturn, the imagery depicting a Fat Lady in the sky again becomes important, with the number of sculptures increasing.

In about 10,900 BC, probably after the compressive force in North America detailed earlier, Earth entered the lower portion of the coma of Saturn. The result was that Earth became part of the circuit which collected electrons from the surrounding space. A ball-shaped plasmoid developed 400,000 miles (640,000 km) below Earth's South Pole, offset at an angle (10 to 15 degrees), and connected to Saturn above the North Pole with streams of electrons in arc mode traveling past Earth. Two more plasmoids developed in the south, in line with the streaming electrons. The plasmoids appeared three times over the course of 2500 years. These appearances lasted to 8347 BC, as can be inferred from Maya sources.

Away from Earth the streaming electrons were circularly aligned into 56 bundles (and lesser numbers) and in arc mode density, thus they radiated in visible light, as well as in ultra violet and x-rays. The bundles were seen, from the perspective of Earth, as bright lines in the sky, converging far below the South Pole into a tight stream before diverging again further away from the pole. I'll discuss this plasma column (the "Peratt Column") in a later chapter.

I should thus note that some of the figurines of this period are likely to be representations of what was seen in the far south. What we also have in this period from many sources is a god with the head of a fish, or a head with the body of a snake.

"The 'Acropolis of Athens' was in ancient times known as the Cecropia, in honour of the legendary serpent-man, Cecrops, the founder and first Athenian king. Cecrops means 'face with a tail', and though often said to have the bottom half of a serpent, some sources say it was a fish-tail -- thus bearing some resemblance to Oannes of Babylonian fame." -- Philip Coppens

For locations below the equator, where the Absu did not obscure the ball plasmoids, this became a smiling face surrounded with sun-like rays.

After circa 6,700 BC the squat figurines reappear, for now the Earth has dropped some distance below Saturn. In Catal Huyuk, in Anatolia, male figurines were created at earlier times, but after 6,700 BC no further male figurines are formed. All the figurines are equipped with breasts. Because of the lower perspective on the Saturnian planets, the figurines become fat and seated. The legs are lost as the coma tail extending to Mars disappears against the main coma of Saturn.

At this period in time the glaciers are gone, having melted a thousand years ago, by 8,000 BC. From 7,500 BC the climate in Europe warms because of the relationship of the northern hemisphere to the Sun.

- **(5) after circa 5,600 BC:** Even the perspective of a seated woman is almost entirely lost, and the figurines start to become entirely abstract over the next 1500 years. Earth was within the lower coma of Saturn at this time.

There are many abstract forms found which can reasonably be dated to this period. They look like snow men, or have headless body shapes with long necks. Possibly these represent the southern plasmoid of the "Peratt Column" rather than Saturn in the north.

The object or "God" of the south is variously described as a fish head with a tail or as a three-headed form with snake tails. The descriptions are found everywhere in the world among the earliest mythologies -- China, the Eastern Mediterranean, Greece, Western Europe, and South America. A following chapter will expand on this.

Meanwhile, the shape in the north would not be seen clearly whenever the layers of plasma in glow mode obscured the view. At this point we have recollected descriptions, but no figurines.

- **(6) after circa 5,200 BC:** What is now experienced is only a white cloud in the north skies, endlessly revolving about the Earth's polar axis. There are recollections of a tail extending to Earth from the cloud. But, again, most descriptions are as likely to be of the southern ball plasmoids instead. Nothing of interest was happening in the north. The tail of these hurricane-like forms extending from the south is the "Peratt Column."

Cardona notes that this apparition was known as "Hurricane" in Central America and the Caribbean. But the *Popol Vuh* makes it clear that "Hurricane" is one of the three Gods comprising "Heart of Earth, Heart of Sky" in the south, where the other two are called "Newborn Thunderbolt" and "Sudden Thunderbolt." "Hurricane" is actually known as "Thunderbolt Hurricane."

"Thunderbolt Hurricane comes first, the second is Newborn Thunderbolt, and the third is Sudden Thunderbolt. So there were three of them, as Heart of Sky."

-- *Popol Vuh*

This is an important concept because the documentation by Anthony Peratt of what was seen, worldwide, was exactly that: three ball plasmoids in the far south. By this time the Earth, in the process of a slow movement toward the center of rotation of Saturn was well within the lower portion of the coma of Saturn.

Earth might have been contained within its own plasmasphere, although of a different shape than today when Earth experiences only the Sun's electric field. Now experiencing the electric field of Saturn, the "tail" of the plasmasphere (if any) would have extended away from the south polar region of Earth. It is also likely that Earth had entirely lost its plasmasphere while within the plasmasphere of Saturn.

- **(7) after circa 5,000 BC:** In the north a giant circular shape shimmers through the mist, or through the plasma streaming to Earth (or past Earth). Some people see this as a duck, other see the shape of an egg. This is the coma directly surrounding Saturn, or Saturn and Uranus. It is likely that the white and smaller shape of Mercury represented the egg, set against the lower edges of Saturn (which was likely still seen from somewhat of an angle).

The bird shape (duck or goose) derives from the fact that Uranus is offset from the rotational axis of Saturn but connected with a long stream of plasma to its south magnetic pole (which is the north geographic pole of Uranus). Seen from below, as the Earth approached a position below Saturn, Uranus would have been seen on the right upper side of Saturn. The connecting neck of plasma is attached to a round head, slightly broader, with a beak-like protrusion at the other pole of Uranus. I am basing this primarily on the early iconography of the

Eastern Mediterranean, as presented by Marija Gimbutas (detailed further below).

Seeing a bird form in the north proved that the giant bird, which had been seen spiraling to the north over the last four or five thousand years (or perhaps for a longer period), was now stationed above the north polar region. More on this particular topic in a later chapter.

In the south three large ball plasmoids still stood in the sky, rotating into view on a daily basis (From 10,900 BC to about 8347 BC). The attention of the petroglyph carvers was mainly directed to these forms, which were certainly much more distinct than the clouded form in the north. They lighted up fiercely -- in arc mode. Of prime importance in the depictions were the bright lines in the sky, the beams of electrons, which streamed past the Earth from the south to the north. Directly above any location on Earth only four beams would show at the most. These rotated with the Earth on a daily basis, and would have been stationary (so claims Peratt also). At Carnac in France the lines are represented by columns of standing stones, some with circular structures at both the southwest and northeast ends of the causeways.

I will discuss additional details of the worldwide interest in the figures below the South Pole, the movement of distinct shapes along the lines to the south, and the periodic deformations of the lines into the strange shapes of giants in the sky, further below.

- **(8) Before 4077 BC:** The bird of creation has laid an egg, smaller than the surrounding coma, and initially white, but this turns to yellow or gold as the egg "broke open."

I suggested above that Mercury with its coma might have been understood as the egg. But when Saturn went nova, it was as if the egg appeared out of the large shape of the duck or goose body. When Saturn went to arc mode discharge in 4077 BC, all of its glow mode surrounding coma collapsed. Only the much smaller golden sphere remained in the north sky. The ball plasmoids in the south would have disappeared as the Earth became the endpoint of an arc from Saturn. The ball plasmoids would, in fact, have moved north, encompassing Earth briefly. This is how the Phoenix bird set itself on fire.

In the north, Mercury (with a coma supported by its atmosphere) and Mars appeared clearly, although Mars would have appeared only as a small dot against

Mercury or Saturn, and, frequently offset from the axis of Saturn and Earth. Uranus appeared to one side, disconnected from Saturn except for a remaining plume of plasma -- originally its neck, but now its hair. [\[note 13\]](#)

Changes

A warmer climate is noted in archaeological records worldwide after 4077 BC, over and above the warming after 9,000 BC, the Hypsithermal.

"Radio-carbon dating and analysis of pollen in buried soils, has shown that the environment of lowland Britain changed around 4,250-4,000 BC. The change to a grassland environment from damp, heavy soils and expanses of dense forest was mostly brought about by farmers, probably through the use of slash and burn techniques, although environmental factors may also have made a contribution." (Wikipedia, concerning the environment of Avebury.)

The same change is noted elsewhere, as, for example, in the archaeology of North America. It is an indication of a completely new era in the history of the Earth and its humans, known as "The Era of the Gods."

As I noted above, only after 9000 BC, at the end of the obscuring dust in the stratosphere, did the figurines again proliferate, eventually reaching into the millions on millions worldwide. Below, I will start with the collection of Neolithic imagery of the Northeastern Mediterranean region gathered by Marija Gimbutas for the period of 7,000 to 3500 BC, and then this discussion will move backwards in time: Over the next two chapters I will start with a suggestion of imagery of the Lower or Middle Paleolithic (500,000 to 2,500,000 years ago). Then to cover the European Upper Paleolithic (10,000 to 40,000 years ago) to discuss cave art and early figurines in Europe, followed by the narrow transitional period represented by Catal Huyuk in Anatolia in 7400 to 6200 BC. After this, the "Peratt Column" of the south can be addressed.

Neolithic Figurines

Of great importance in the field of artifacts and dateable archaeology in the Neolithic is the voluminous collation of archaeological findings collected and interpreted by Marija Gimbutas for the Balkans, Macedonia, Minoan Crete, and Anatolia. The dates of her studies range from 7000 BC to 3500 BC. [\[note 14\]](#)

I cannot adequately summarize Gimbutas's research here. Gimbutas presents pottery which shows motifs of eggs, dual eggs, snakes, water signs, birds, the double axe, and whorls. The last two are similar to the designs of the megalithic art of far-western region of Europe at the later dates of 3000 to 2400 BC. Animals are also depicted with the pottery decorations -- the domestic animals of Europe rather than the Mesopotamian and Egyptian lions and griffins. [\[note 15\]](#)

Of special interest are the numerous figurines described by Gimbutas. Almost every one of the 100,000 small hand-held figurines of the period 7000 to 3500 BC is female, naked, and obese (or pregnant), especially among the earlier examples. Only in infrequent instances do faces appear incised on the figures, or are there hints of ornaments or clothing. In later forms they are often shown with outstretched arms (and legs), long phallic necks, and heads with "bird masks." They are shown at times giving birth or with children.

Gimbutas points out the obvious -- that the Venus Figurines were not new to the farmers of the European Neolithic (7000 to 3600 BC), but carried on the tradition of the 3000 or so female figurines of the Upper Paleolithic (40,000 to 10,000 BC) of Europe. Figurines have been found by the hundreds of thousands throughout Europe, and in the Neolithic expand to millions on millions throughout the world. The figurines were first produced in about 27,000 BC. They disappear from the archaeological record of Western Europe for some 10,000 years, and reappear again after 18,000 BC, long before the appearance of the related artifacts in Gimbutas's collection. [\[note 16\]](#)

The images are understood by Gimbutas as representing the Mother Goddess. However, they are congruent with the later "Polar Configuration" imagery depicted in the Middle East and Egypt.

I think the Venus Figurines of the Upper Paleolithic, consistently naked, fat, female, faceless, and footless, and later similar naked female figurines of the Neolithic, describe Saturn in glow level plasma discharging to a set of planets -- two above and two below the poles of Saturn. A plasma discharge in glow mode will form a bubble much larger than the object that is discharging, and will look like a physical connection between close planets, which consists, however, only of an enclosing bubble of charged particles for each planet, with a pinched condition in the region between the planets.

The head with the missing face, often shown with what looks like braided hair covering the face, is a glow level plasma discharge to Uranus located above

Neptune, but offset so that the head looks to be nodding forward. This is a consistent feature of the figurines.

In the later period of the Magdalenian the planets above Saturn seems to have moved further apart, elongating the necks of the figurines. This change in how the figurines looked is likely due to a change in perspective. At some time Earth passed through a position at an equatorial elevation to Saturn.

The "bird mask" faces of Gimbutas are likely the plasma discharge from Saturn, via Neptune, which made contact at a location about 10 degrees above the horizontal (not at the bottom) of Uranus directly above Neptune, with a much lesser secondary flow at the opposite horizontal location of Uranus, thus forming the bird beak of the long-necked figurines.

Today the magnetic pole of Uranus is located nearly perpendicular to the plane of the ecliptic, and thus perpendicular to the axis of rotation. This is an enigma for astrophysicists, who maintain that the magnetism of a planet is internally induced by a differential rotation of the core material. Plasma theorists maintain that the magnetic fields of planets are externally induced by the electric field of the Sun. I see no reason for the magnetic poles of Uranus not to have been aligned closer to the axis of rotation during the time it was within the sphere of influence -- the electric field -- of Saturn.

Uranus today still lies on its side with its poles placed 10 degrees above and below the horizontal (above and below the plane of the ecliptic). The plasma flow from Saturn would land mainly at the south magnetic pole of Uranus, which was the pole closest to the rotational axis of Saturn and Neptune, and is today identified as the north geographic pole of Uranus -- angled 10 degrees above the horizontal. Thus the main flow of plasma, the "neck," would connect to a "head" which was tilted downward by 10 degrees and pointed away from the "body" of the coma of the other planets.

Since Uranus lies on its side and its axis of rotation points along the plane of the ecliptic, the "head" of the figure in the sky would seem to rotate only very slowly, once with each rotation of the Saturnian planets around the Sun. It was as if she was standing still in the sky.

Along with the bird mask face another peculiar feature of the figurines worldwide is the slit eyes which almost all of them have, even at locations thousands of miles (or continents) apart, and which carry through enormous

spans of time. It is inconceivable that this feature, which spans all the continents and tens of thousands of years, would be a worldwide graphic convention.

The first clear instance of slit eyes actually dates to the Upper Paleolithic, a figurine excavated in Moravia at Dolni Vestonice (Dolní Věstonice) dated to 30,000 to 24,000 ya. Slit eyes are still being added after 3000 BC, and represented by the millions upon millions of figurines.

It is likely that one or more of the satellites of Uranus, which would revolve around Uranus in a circle at a right angle to the horizontal, managed to extend beyond the enclosing plasma coma. The four outer satellites of Uranus are large, and rotate at periods of a few (Earth) days to thirteen days.

The outer and largest satellite, Oberon, orbits at 600,000 km from Uranus, far outside of the rings. At a rotational period of 13 days, Oberon would be visible for about three days in any quadrant of its rotation. This still does not constitute a "slit," nor would it represent two eyes. The slit might be a trailing plasma of Oberon, perhaps shadowed by the Sun, as Oberon and its tail broke through the enclosing coma at one quadrant. We can assume a bilateral symmetry for the coma, so that if this happened in one quadrant, it would be repeated at an adjacent quadrant (seen at the upper left of the face, then seen at the upper right quadrant). The "front" of the "face" of Uranus could only be viewed for a few weeks during the Earth's solar year, so that the existence of two eyes might have to be an assumption made by humans on the basis of profile viewing of the planet. The partial visibility of Oberon has implications for the size of the coma surrounding Uranus.

The legs with the missing feet describe a plasma stream reaching to Mars far below the south pole of Saturn. The large belly or buttocks is probably the coma surrounding the planet Saturn. The large breasts are the left and right extremes of a similar plasma toroid surrounding Saturn or (more likely) Neptune.

All four or five planets together would always be seen as a standing figure in the ecliptic of the sky, and, in effect, standing still because the beak of Uranus always pointed in the same direction of space. The ecliptic would wobble throughout the year and daily (as today), and the figure would seem to move up and down in the sky over the course of a year. Except when near the horizon, where the ecliptic dips below the equatorial seasonally, the figure would always be nearly upright -- like the "face" in the Moon today.

The power of seeing an image of a woman in the sky during the Paleolithic and early Neolithic, seen periodically rather than continuously, must have made an enormous impression. Humans anthropomorphized what they saw. Humans saw the Fat Lady approach and move through the night sky -- perhaps to deliver babies -- then disappear and return again in a year, or, at an earlier time, in decades, or a thousand years. The bird figure of the Neolithic, with the rounded body and the long neck and single leg, remains in European iconography as the stork which delivers babies.

During the early Neolithic, this image was seen more frequently, although probably still unpredictably. If it had been seen all the time, or with predictable movement, it would have had no more psychological impact than the ever-present Sun and Moon, neither of which have ever generated much in imagery or myth. The Sun is stable, and the Moon moves regularly. But Saturn as a figure in the sky would move unpredictably. The figure might have moved from the daylight skies to the night skies over the course of the year (or some inexplicable period) and certainly would move further up or down in the sky with the change in the respective orbital locations of Earth and Saturn.

The persistence of the imagery into the early Neolithic (when the location of the figure had more or less stabilized) and the subsequent proliferation of reproductions may be due to the culture specific to the first Neolithic farming communities. If the early farming and gathering communities were run by woman (as seems likely), the Fat Lady might have been their emblem and symbol. [\[note 17\]](#)

After 10,900 BC, with the onset of the Younger Dryas, there was nothing to be seen in the skies because of the shadow of that era.

When the skies cleared considerably in about 9,000 BC, there again was little to see except endless swirling skies. Then, after about 5800 BC, the Earth had fallen into an orbit below Saturn and seemed to have moved closer. This in effect obliterated the figure in the sky, replacing it by a swirling cloud, which eventually transformed into a giant white bird (and later an egg) rotating above the horizon in the north. Because Uranus did not line up with Saturn, it was seen past the edge of Saturn as the head of a bird, and the whole was recalled in the artifacts and pottery decorations of some people as the image of the Goose of Creation.

What is amazing is that in Eastern Europe and Anatolia, the figurines shifted effortlessly from the naked fat woman to a bird-masked figure (as it did in

Japan), despite a definitive lack of anything of form in the skies for a period of a few thousand years. It is possible that between 10,900 BC and 8347 BC the southern ball plasmoids substituted for the Fat Lady (resulting in a spate of snowman figurines). And if today we possess 100,000 recovered figurines for a portion of the Eastern Mediterranean, then there were likely millions more originally. That would constitute a social force, like a religion, which determines its own continuity.

In 4077 BC Saturn went to arc mode discharge to Earth and the imagery in the sky changed. Saturn went nova -- that is, it underwent a mass expulsion (creating Venus and possibly the rings), and switched to arc mode plasma discharge. The Earth now became the main contact point for the plasma discharge, via Mercury and Mars. Earth was a newcomer to the group, and a fresh object to steal electrons from. [\[note 18\]](#)

There now appeared a whole new set of images in the sky, but many of the figurines and related artifacts, while still replicating the earlier iconography, are now embellished differently. The figurines have added outstretched arms, perhaps representing a depiction of the rings of Saturn. Conservative as humans are, the new images only reinforce old established interpretations. The persistence of Goddesses (as opposed to Gods) lasted well into the Classical era (thus lasting some 6000 years to the start of our era), even when nothing in the sky looked at all like the Fat Lady anymore. The idea of a Goddess as the generatrix of humanity is expressed by the priests of Sais who talked to Solon -- as reported by Plato.

Actually, the figurines stopped development after about 4000 BC. (There were some worldwide exceptions.) They either became reductively abstract or realistically humanized. By 3000 BC production of the figurines had stopped almost everywhere in the world, except in a few locations where they take on the status of amulets. Crete was still manufacturing the figurines wholesale in 1500 BC, as tourist souvenirs -- acceptably slimmed down and painted.

Objections to Gimbutas

Gimbutas traced the Earth Goddess imagery forward to the Goddesses of Classical Greece: Hekate, Artemis, Demeter, and the warrior Goddess Athena. The multiplicity of Goddesses in Classical times and the variation of local names suggest that the prototype Goddess existed since very early times.

Despite the variety of names, the rituals and mystical associations remained constant over large geographical areas.

The earlier status of the Goddesses was not easily lost. Goddesses remained in the pantheon of early antiquity and in some cases retained their primacy. Athens claimed the warrior Goddess Athena as its own. Isis remains the most popular Goddess of Egypt, and her worship and veneration carries over into Roman times. (The imagery reached India and eventually China.) The succession of the Egyptian pharaohs continued to be matriarchal. However, many of the goddesses who might have been the supreme deities of earlier times are found to be married to male gods by classical times (as Gimbutas notes).

The advent of male gods, says Gimbutas, happens following the invasions of the Kurgan "Indo-Europeans" from West Central Asia after 4300 BC. This was a male-dominated nomad society, based on herding. These Indo-European invaders did not displace the original Europeans, but they brought many changes -- warfare, the feudal system, male domination, male deities, and probably new languages. The second or third wave of invaders apparently brought the horse. With nothing to trade, the later Kurgans herders developed an economy of piracy and raiding. [\[note 19\]](#)

Many critics have seen Gimbutas's theories as an affront to their closely held views of prehistory and the primacy of males, especially her suggestion that a peaceful matriarchy was displaced by a war-like Kurgan overlord patriarchy. The implication of Gimbutas's work was that the sculptures, figurines, model temples, and pottery decoration were the exclusive domain of women, and further, that the small farming communities were run by women.

I doubt if we can conclude that a matriarchy existed on just this basis, even with the many remnants of matriarchy still extant today. Any mix could have been possible. We are seeing remnants of emblems, not the underlying philosophy or practices of a culture. Our Western Christian culture is based on a sacrificed God, yet little could be made of our icons and emblems if viewed in the archaeological context of a far-distant future if these icons were the only evidence of our culture. [\[note 20\]](#)

My disagreement with Gimbutas centers on her insistence in seeing nearly everything as symbolic, "... prehistoric art was symbolic art." I insist that prehistoric art was representational art. "Breasts symbolize the nurturing and regeneration of life." Breasts were shown because that is how the model for the figurines was seen in the sky. To her credit, but perhaps to bolster her thesis,

Gimbutas also insists that the naked figurines were not meant as erotic depictions. Art historians have pointed out that there are no erotic images to be found anywhere in the world until well into the first millennium BC.

If Gimbutas's "cult of the Goddess" was generated by images in the sky then it was not a reflection of life, but a response to a whole other domain -- which today we blithely identify as "spiritual" -- although in fact it was not a manifestation of the "spiritual" but a response to the "actual." And we have no idea what the response was. We simply do not know if the object or person in the sky was thought to need placation or worship.

Endnotes

Note 1 --

About the Holocene climatic optimum, Wikipedia reads, "While temperatures in the Northern Hemisphere were warmer than average during the summers, the tropics and areas of the Southern Hemisphere were colder than average."

Today the Earth is 5 million miles (8 million km) closer to the Sun during winter in the northern hemisphere than in the summer, but that has little to do with the climate, although distance from the Sun is a factor.

The seasons of the Earth are determined primarily by the inclination of the spin axis. During the Hypsithermal period, with the Earth below the Sun year round, there would be relatively little change in the angle of the Sun in the sky. Thus summer lasted year round.

As Earth started to draw closer to Saturn after about 6000 or 5000 BC, the climatic zones relocated to their proper place on the globe. The Nile filled with water again, and the Nile valley was occupied again.

The continuation of the mild climate after 3147 BC was primarily due to an orbit which was much closer to the Sun than today. The further extension of a milder climate to 2500 BC (others claim 2000 BC or even 500 BC) may have ended with the advent of the darkness of 2193 BC -- a 200-year shadow condition like the shadow of the Younger Dryas period.

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Note 2 --

See Charles Ginenthal, "The Extinction of the Mammoth" (*The Velikovskian*, V3, No 2 and 3, 1997, available as a reprint), which lists a compendium of sources on the effect of the Hypsithermal in the subarctic regions. Ginenthal, however, is out to prove the extermination of the mammoth in Siberia in conformity to Velikovsky's claim that this happened, and happened only once, in 1500 BC. The evidence is thus selective, and in places Ginenthal is more interested in disproving established data, as, for example, in bringing in evidence of discrepancies in Carbon-14 dates.

Ginenthal writes about glacial till deposited in the North Atlantic, called Heinrich layers, which have been identified as debris of land glaciers as they skidded into the ocean. The Heinrich layers represent melting conditions for land glaciers. Ginenthal asks: "... why are there no such layers [of deposited continental debris] in the oceans in the southern hemisphere closer to Antarctica?"

He answered his question with, "The ancient ice cap in Antarctica did not exist at this time." That is one answer, but, in fact, the Antarctic glacier most likely existed. There is no evidence that the Antarctic glacier ever melted (in the last 120,000 years). The South Pole was in almost total darkness during the early Hypsithermal, and thus we should not expect glacial melting. And the South Pole is very mountainous, a geology which always retains glaciers. The most recent Heinrich layer in the North Atlantic (named "H0") dates from about 12,000 ya, well before the start of the Hypsithermal.

The mammoth, and other large grazers, including dozens of species of elephants, rhinoceros, giant beaver, and billions of trees were destroyed in 3147 BC, when high tides (probably from the south initially) swept inland and rolled broken carcasses and splintered trees to the Arctic ocean basin. The mammoth herds re-established themselves over the next two thousand years, as did the plants, for the climate had not degraded all that much. There was a considerable change in climate circa 2200 BC, however, when the Hypsithermal ended and the effect of the long Arctic night was felt again. This may very well have been the effect of the interaction with Venus in 2193 BC, when the skies darkened due to dust in the stratosphere (it ended the Akkadian Empire and the Egyptian Old Kingdom also). But the final change in the climate of Siberia -- a return of frozen ground and a cover of Tundra -- probably happened in 1492 BC, when the mammoth herds were subjected to a catastrophic winter condition, lasting more than a year as the Earth nearly tipped over. Directly after, the Earth's orbit

became some 30 percent larger, a value close to what we experience today.

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Note 3 --

I estimated 10 to 15 degrees from climate data. Ginenthal estimates 13 degrees, also based on climatological considerations. He presents this in terms of the rotational axis of Earth being inclined only 9 or 10 degrees to the orbital plane of Earth, rather than the 23.5 degrees experienced today. The two estimates are equivalent except that, under my proposal, the Arctic land region would have long summers and experience less of the dark Arctic winter. Under Ginenthal's proposal the South Pole would also have been lit by the Sun. Under my proposal the Antarctic region would remain completely in the dark for 3000 years. But of southern land regions, even the tip of South America, which is at 50 degrees south latitude, would not experience continuous darkness.

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Note 4 --

The period is also known as the Holocene wet phase, which allowed reoccupation of the desert area west of the Nile valley (and south of the Mediterranean) after 9000 BC, a region where no one had earlier lived for a thousand years. The Nile valley itself was unoccupied from about 9000 BC to 6000 BC. It has been suggested that the Nile was reduced to a trickle during this time, the result of less rain falling in Central Africa and Ethiopia. The Nile normally fills a very deep and narrow gorge, apparently created 15 million years earlier, when the Mediterranean had dried up.

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Note 5 --

The book "North American Indian Stone Bird Effigy; Field Guide, Finding and Identifying" (2010), by Dennis Moore, presents a collection of Paleoindian artifacts of a central region of the state of Michigan. This area was occupied by hunters (presumably using the Clovis style spearpoints) after the Laurentide Ice Sheet melted in this location in about 13,000 to 12,000 BC. But then in 10,900 BC the electric field impact force centered on Hudson Bay brought all life to a halt.

Reoccupation took a thousand years and was by a completely different people. Thus the stone artifacts found at this location represent a snapshot of the last

few thousand years of a Mousterian tool tradition (which originally dated to perhaps 50,000 BC in North America). The sitting stone bird forms are found above the sand fill deposited after 10,900 BC in Michigan, and thus likely date to after 9000 BC, that is, after reoccupation of the region when the cold snap of the Younger Dryas had ended.

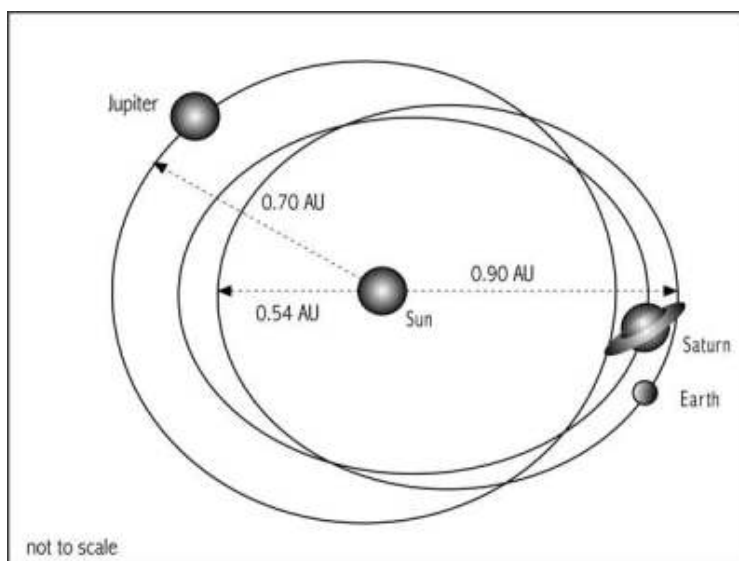
Moore's collection of stone bird effigies are crude and unfinished except for hammering and chipping, and the scoring of lines. This is unlike the "birdstone" neolithic artifacts of later dates which is found south of the Great Lakes and along the east coast, which are shaped by a grinding process.

The scored lines drop down from the eye of the birds. It most likely is the plasma trail of Oberon, one of the satellites of Uranus as it broke through the coma weekly. Slit-shaped eyes are ubiquitous among the Venus figurines also, often making them look like they have the heads of snakes.

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Note 6 --

The distance between the orbit of Earth and the orbit of Jupiter when Jupiter was outside the orbit of Earth is from information developed in Appendix B, "Celestial Mechanics," and based on an average orbit of Earth of 225 days (at 0.72 AU) and an estimated eccentricity of 0.25.



[Image: Distance between the orbits of Jupiter and Earth in circa 10,000 ya. Illustration by J. Cook.]

With Jupiter at 0.7 AU from the Sun, the Earth (with Saturn) would be at 0.54 AU at its closest distance to the Sun. The difference is 0.16 AU. The angle subtended by Jupiter, as seen from Earth, can be found from the arctangent and is 0.34 degrees, a little smaller than the angle subtended by the Moon:

$$\text{arctangent}(88700/ (.16 * \text{AU})) = .34 \text{ degrees}$$

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Note 7 --

I apologize to the reader for presenting conclusions (such as the planets in the Saturnian stack) long before all the details on which these are based can be presented and especially the details which will establish them as certain. But bear with me, all the data will be presented over the next 34 chapters and 15 appendixes.

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Note 8 --

The ratio is from similar triangles, as follows: A distance of 3 feet (1 meter) for holding a 3.5 inch (9 cm) high figurine; the actual distance to Saturn to the actual height of Saturn, where I am assuming the two planets above Saturn occupied 1.8 million miles (2.9 million km) as detailed in Appendix B, and I am allowing another million miles from Saturn to Mars:

$$(\text{distance to Saturn}) / (3 * 12 ") = (2.8 \text{ million miles}) / (3.5 ")$$

$$\text{Distance to Saturn} = (3 * 12 * 2.8)/(3.5)$$

$$\text{Distance to Saturn} = 28.8 \text{ million miles}$$

[\[return to text\]](#)

Note 9 --

Book 11 of the Maya *Chilam Balam* details seven sightings of Saturn, which must have been separated by spans of time of 3000 to 8000 years. The recap of the original book, written in the 16th century AD, complains of the vast in-between periods where nothing happened. One translator (from the Mayan) suggests that the seven "stones" are described as "on fire."

Corresponding to similar periodic peaks in the changes of the levels of background Carbon-14, this would take the Mesoamerican record back to either 38,000 or 41,000 before the present. A record like this is not as radical as it looks, for the decoration of European limestone caves similarly dates back almost that long, and continued with the same aesthetic for some 20,000 years,

until Southern Europe turned to a desert, and the Cro-Magnon population moved away.

I should point out that any tribal people who kept records of events would, after some thousands of years, recognize the repeating nature of the events. These would certainly stand out from all other mundane and contemporaneous events, and it is likely that only these were retained. There was little else to record or talk about for thousands of years. In that Mesoamerica and the prior people where not invested in kings or heroes but remained an egalitarian society, they did not take notice or record kings or heroes. Book 11 interprets the oldest records only in terms of the eventual birth of a Christian "God the Father" from the stones in the sky. This long period is probably also presented as the seven days of creation in the Bible.

[\[return to text\]](#)

Note 10 --

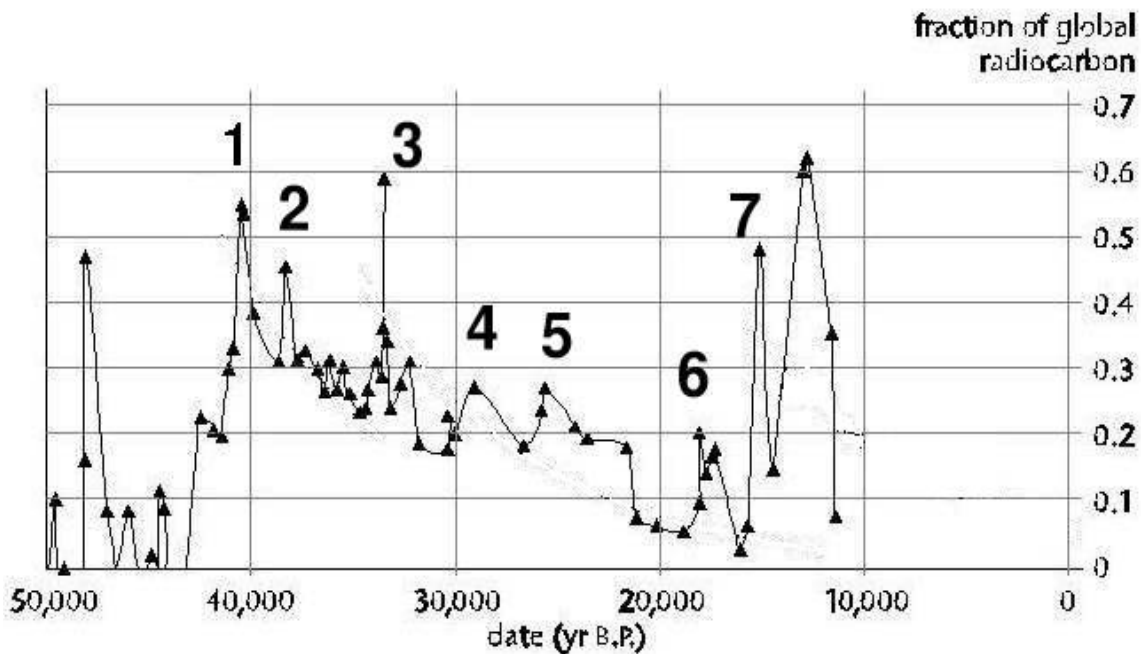
The cup and tail marks (some of which appear in European caves dating to 32,000 years ago) should not be confused with the concentric circles (often also with a tail emanating from the center) and swirls found inscribed on megalithic constructions after 3100 BC. The concentric circles are a phenomenon of burning gases entering the stratosphere or upper atmosphere. These have been identified from rocket launches in the 1960s. More details on this later.

[\[return to text\]](#)

Note 11 --

The archaeological record of Eastern Europe (at Dolni Vestonice in the Czech Republic) looks as if there were a continuity of figurines through the 10,000 year hiatus of Western Europe, although many of the archaeological dates, determined early in the 20th century, and without the aid of Carbon-14 methods, may not be all that accurate.

The chart "Fraction of Global Radiocarbon" which covers the period of 50,000 ya to today, was presented in an earlier chapter (Chart due to A.H.L. Voelker et alii, 1998, and presented by Firestone and Topping in 1991). I pointed up three peaks of excess levels in Carbon-14 (above the current value) as possible contacts with Saturn, especially since the Earth's magnetic pole changed location, either turning upside down or "wandering" about. In two instances these dates were also related to massive extinctions of megafauna.



[Image: Fractional global radio-carbon since 50,000 bp.
After Firestone; from A.H.L. Voelker (1998).]

On the chart above some 7 or 8 peaks can be counted. These have been numbered in correspondence to Book 11 of the Maya *Chilam Balam*, which recounts seven attempts by God the Father to be born from the rocks in the sky which were periodically seen (the 8th attempt is not counted as completed in antiquity, and not numbered by me).

If we can suggest that the peaks in Carbon-14 levels represent electric field contacts with Saturn (or close sightings), then it is clear that there is a period of approximately 8,000 years where nothing was seen of Saturn and Mars. This 8,000-year period, from circa 24,000 ya to circa 17,000 ya (5 to 6), coincides with the period of the absence of Venus Figurines, which is held to be "six to ten thousand years" following 24,000 ya.

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Note 12 --

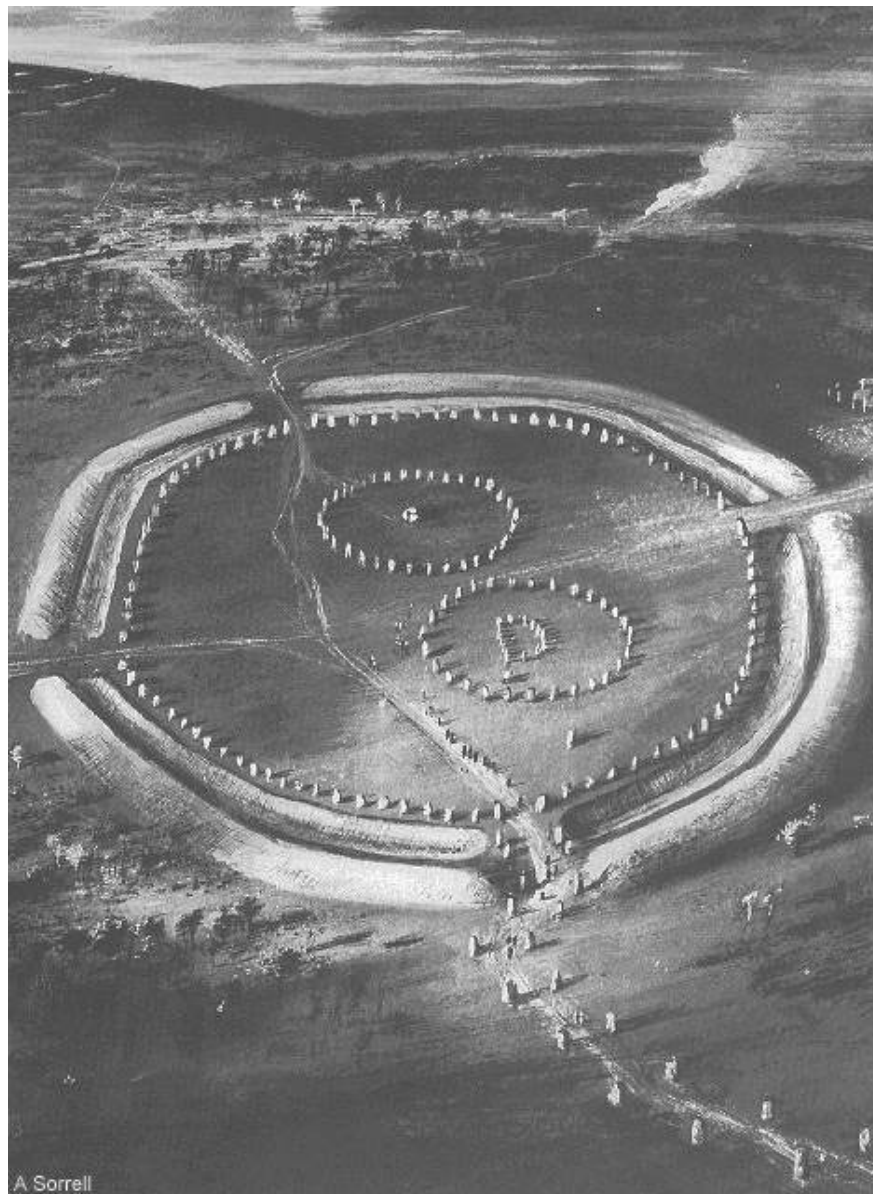
The Maya *Popol Vuh* identifies five planets in the north during this time, calling one of them "Sovereign Plumed Serpent" which will be recognized as the Mayan name for Venus -- which it is not. At the time of the narrative, the era before the "first creation," Venus did not exist yet. Shrouded in a white coma, Mercury

could have easily passed for the later Venus.

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Note 13 --

That there were two smaller planets below Saturn may have been remembered and indicated with the construction of the gigantic Avebury henge in England (1400 feet, 450 meters, in diameter), located about 15 miles (24 km) north of Stonehenge. Within the circle of stones were two additional smaller circles of standing stones.



[Image: Avebury henge, artist reconstruction looking northwest, after drawings by William Stukeley (circa AD 1720). After Alan Sorell.]

The two smaller circles are offset about 10 or 20 degrees from the north cardinal direction (NNW and SSE), as is the entrance of the larger circle at the SSE edge. With the exception of Stonehenge and nearby Durrington Walls, no other henge (that I have been able to ascertain) has these details. Stonehenge has two small mounds in approximately the same locations, but closer to the edge of the original circle of 56 holes. Stonehenge was thus likely modeled after the somewhat earlier Avebury henge. The structures within the henge area of Durrington Walls are less defined, but the locations are approximately the same.

If these two circles represent two planets below Saturn, then one of them is much too large, for Mars is not likely to have supported a large coma, on the order of 10 or 20 planet diameters, although Mercury, because it likely had an atmosphere, probably would have. The fact that these "planets" are offset from each other is not a conceptual problem if Mercury indeed was a late addition to the stack of planets.

Additionally, if the henge was modeled after the looks of Mars descending during the later period when Saturn still stood at the north horizon, Mars might have been enclosed in a plasma connection in glow mode which reached to Earth, and thus would have looked much larger, especially on a close approach to Earth. This assumes that the iconography of the Egyptian White Crown is a nearly accurate depiction of what was seen in the sky. The White Crown is discussed in a later chapter.

The two circles could be dismissed as some symbolism which is obscured to us, except for the fact that the causeway leading out toward the southeast and the additional henge of the Sanctuary at its terminal are accurate. The causeway out to the southwest to the vicinity of two long barrows, is a poor memory of the conditions before 8347 BC, however. These last are models of the earlier "burial mounds" in the south sky, and apparently predate (circa 3600 BC) Avebury henge. Whoever constructed Avebury backfilled the burial mounds and blocked their entrance (in circa 2200 BC).

Ron Wilcox (http://www.archtext.co.uk/onlinetexts/britains_past/) suggests that the use of West Kennet barrow ended in 3625 BC. The dates of construction for Avebury are as yet uncertain. Archaeologically it is held to be constructed only very late, 2,900 to 2,600 BC, but other dates place the earliest carbon traces of the ditches (which are cut into a chalk base) at 3,400 BC. The Avebury form and

the related causeways, including the one to West Kennet mound suggest it is either very old, or recalls much older forms.

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Note 14 --

See Marija Gimbutas, *The Civilization of the Goddess, European Neolithic Communities, 7000 to 3500 BC* (1991), and a number of other books through 1999. Since Gimbutas read a dozen European languages, she was able to muster resources which remained unavailable to other researchers.

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Note 15 --

Along with seeing an upturned crescent on Jupiter after about 9000 BC, when Jupiter was inside the orbit of Earth with Earths below the "ecliptic path" of the planets Jupiter and Saturn, Jupiter would have been seen as a brightly lit disk, similar to the full Moon when the orbit of Earth would place it inside the orbit of Jupiter. Because of Earth's lower position with respect to the Sun (3 million miles, 5 million km), the lighted half of Jupiter would have looked like an oval (an egg shape) rather than a circle, since a portion of the upper and lower part of the lighted hemisphere of Jupiter would not be seen.

Jupiter was at that time on an orbit somewhat less than Earth's current orbit. Saturn and Earth were most likely on an elliptical orbit which alternately moved inside and outside of Jupiter's orbit. Because of its travel on its outer orbit, the lighted face of Jupiter would not have had the distinct phases like the Moon does today.

Additionally, when Jupiter was seen through the obscuring equatorial rings of the Earth, refraction of the light would have created large adjacent left and right crescents. This easily accounts for the prevalent double axe imagery (the labrys) of the early Neolithic which shows up in Gimbutas's collection of images.

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Note 16 --

Figurines occur in Europe, throughout Asia, Africa, and in Central and South America. Japanese Dogu figurines of the Neolithic, also naked and female, have the same flat-faced bird-beak features as many Eastern European figurines.

Figurines are found in the Mexican Neolithic to about 2500 BC. These are also naked and female, and have been described as having "strange hair-do's."

As I have stated, in Western Europe the Venus Figurines are first seen in 29,000 to 21,000 BC (centering at 27,000 BC), and then disappear until the period of 17,000 to 14,000 BC. If it were not for this enormous gap in time (much longer than all of recorded history) I would have never made an association between the image in the sky and the small hand-held figurines. It is inconceivable that these figurines would not disappear from cultural transmission during a period of 10,000 years, unless the nearly identical icons had a source other than age-old memories.

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Note 17 --

Other reasons for the proliferation of the figurines in the European Neolithic are that there were more people, and pottery and baked figurines were being made at that time. Because these people were farmers, there were now agricultural settlements, which resulted in the concentration of archaeological artifacts. Farmers arrived in Central Europe after about 5500 BC. The arrival of farmers (and herders) in Macedonia, Greece, Italy, and Spain was earlier.

I would not propose that the early figurines were "fertility symbols" as many others have. Foraging humans of the Upper Paleolithic didn't need or want fertility, especially if traveling in hunting groups. It is more likely that the figurines represent an "infertility" symbol -- a prohibition against coitus unless commanded by the Fat Lady in the sky. That would have served women better throughout the Paleolithic and early Neolithic.

Perhaps the arrival of the Fat Lady announced the time for reproduction and child bearing. Then the infrequent appearances of Saturn might account for the slow rate of growth of farming communities before 3000 BC -- as indicated by the length of time some early villages remained the same size.

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Note 18 --

With a change to arc mode the resistance drops. Once in arc mode, additional current decreases the resistance, so that the change to arc mode in effect represents a run-away condition.

Uranus visually disappeared behind Saturn as the Earth moved closer to the center of rotation of Saturn. (Uranus fits exactly above Saturn, even though offset from the center of rotation.) In very early (and predynastic) Egyptian iconography Uranus shows up as the captive held by his hair who is about to be clubbed by the pharaoh. He is placed on the lower right side of the image, so at the lower left of the pharaoh (grabbed with the left hand). In actuality Uranus had disappeared from view (the *Chilam Balam* records Uranus sinking into Saturn), and the imagery of being clubbed would be legitimate of describing Uranus's fate. It is presented in the past tense.

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Note 19 --

It was Gimbutas who developed the idea of the Kurgan invasions. She dates these to three periods, 4400 - 4200 BC, 3400 - 3200 BC, and 3000 - 2800 BC. Indo-European speakers may have occupied a large region of Central Asia. I think the Indo-European languages were probably first introduced by the invading Neolithic farmers from the Black Sea region, called "Old Europeans" by Gimbutas, heading directly west into Central Europe, rather than by the later Kurgan herders. This happened probably soon after 5600 BC, and included migrations into Italy and Spain.

Tribes speaking an Indo-European language reached as far east as the western borders of China. The Kurgan invasion north into Russia, Germany, Lithuania, Latvia, Britain, and Ireland happened separately from the first wave which, like the earlier farmers, also headed west into Europe. There are later Indo-European incursions (after 2500 BC) into India from Central Asia, followed by entry into Persia (apparently from India), and into Greece by people who are linguistically closely related to each other, but less so to other, older Europeans.

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Note 20 --

See Cynthia Eller *The Myth of Matriarchal Prehistory* (2000). But like Gimbutas, Eller argues from the symbolic (that is, metaphorical) meaning of artifacts rather than their basis in representing an aspect of reality, and imposes modern attitudes on a radically different people and era. However, I agree with the following (I have broken up a long paragraph, below):

"This symbolic code [she is talking about scratches and scrawls] leads feminist matriarchalists to speak as though there were no relevant

difference between the essential focus of religion in Siberia in 27,000 BCE and Crete in 1500 BCE. They usually treat all of prehistoric Europe and the Near East as if it were a single cultural complex, viewing cultural variations as an epiphany of the multiplicity of the goddess rather than as evidence of distinctive religious beliefs or systems of social organization."

Eller makes the case that these few artifacts cannot be extended to institutions or religious practices of which we know nothing. Her statement, above, certainly represents the strongest claims against a unified prehistoric religion or mentality. But on the other hand, it is precisely the existence of a single worldwide phenomenon that produced the remarkable similarity of imagery, not just from Siberia to Crete, but from end to end on every continent, and strung out over a period of 30,000 years. The spectacularly consistent iconography, which may have expressed widely divergent religious beliefs and practices, takes its unity from actual celestial events.

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Special thanks to E Boettger for suggesting that I add these chapters before the "Era of the Gods."

Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Chapter 11: Saturn and Archaeology.

\$Revision: 42.6 \$ (arch.php)

Contents of this chapter: [\[The Hand Axe\]](#) [\[Lascaux\]](#) [\[Catal Huyuk\]](#) [\[Endnotes\]](#)

The Hand Axe Revisited

Having suggested in the previous chapter that Saturn appeared (and was recorded) in the Upper Paleolithic and in the Neolithic as a composite set of four (or five) planets, it is time to extend this idea backwards in time with some additional well-founded speculation.

As I mentioned in a previous chapter, the Acheulean hand axes of the Lower Paleolithic (from roughly 1.5 million ya to 40,000 ya) -- which had appeared over the course of more than a million years in Africa, Europe, and Western Asia -- look so much alike that they seem to have been manufactured from blueprints which were universally available for a million years. I will now suggest that this blueprint was seen in the skies near Earth, and, in fact, the model object was seen launched through the skies, just as hand axes were meant to be thrown.



[Image: Cutting pebble, naturally backed end scraper or cutting tool, Acheulean hand axe. All from the Oldowan culture, Africa. Shown in order of historical development. After Jacquetta Kawks, "Prehistory" (1965)]

What hints at this is the off-center location of the almond point of the Acheulean hand axe, clearly shown above. The offset serves no purpose in its use, yet it is always there. It looks like we are seeing Saturn (with Neptune?) and Uranus locked in the usual position of having their magnetic poles located together, so that an extensive coma, enclosing both, is rounded at the bottom, peaked at the top, and offset in one direction. The rotation of Uranus in the plane of the ecliptic would cause the figure in the sky to look three-dimensional yet flattish. All sides of it would be seen over the course of a year or with a number of passes.

Homo erectus did not add or subtract anything from the original design. The sharp edges on all sides of the hand axe were the inadvertent result of chipping the stone to shape. The large size was mandated by what was seen at arm's length, which suggests that Saturn and Uranus were seen relatively close to Earth, although it is more likely that instead we are seeing a much more extensive coma. The centers of the two masses constituting the Acheulean hand axe, the rounded main portion and the peaked upper part, are in the same proportions as the much later body and head of the Venus figurines.

What argues against Homo erectus having thought up, designed, and tested this assault weapon on his own, is not only the small size of his brain, but also the fact that no further inventions (at least, in stone) were ever made. When Homo neanderthalensis appears, a million years later, he develops stone cutting tools in the blink of an eye. [\[note 1\]](#)

Homo erectus kept the off-center almond point dictated by the original blueprint, but also kept the unwieldy size. A hand axe of half the size would have weighed one quarter as much, could have been thrown further and more accurately, yet would have done nearly the same damage. Did anyone ever think to test this idea? Did any Homo erectus ever think? Homo erectus did, however, have the mammalian facility for imitation, and the cultural structure to spread this idea everywhere. At least, everywhere in the world where antelopes congregated at watering holes. (The tool is missing from the jungles of Eastern Asia.)

If my speculations are correct, it means that Saturn, as I already suggested, remained within the inner domain of the Solar System after its re-entry three million years ago, at least, periodically. One and one-half million years ago Saturn was seen for extended periods of time by our remote ancestors.

Mars was not part of the Saturnian planet system at that remote time, for otherwise Homo erectus would have developed the stone dagger instead.

Lascaux

Gimbutas documented the Neolithic (7000 to 3600 BC), the first period to have small villages and communities in Europe which in turn provided accumulations of discarded pottery and sculpture in concentrated locations. The Upper Paleolithic (roughly 40,000 to 10,000 BC), in contrast, is the era of wandering hunters in Europe and Asia. These people left nothing behind for us to find except infrequent kill sites, occasional rock shelters, a few figurines, and -- by chance -- some 300 decorated below-ground caves throughout Europe and into Asia. One of the best known of these is the decorated cavern of Lascaux.



[Image: The cave at Lascaux. An aurochs and horses. After lascaux.culture.fr]

In 1960 André Leroi-Gourhan and Annette Laming, in an analysis of the cave of Lascaux (15,000 BC -- 10,000 BC), concluded that, invariably, the drawn figures of animals in alcoves face each other and are paired by types -- a horned animal (aurochs or bison) against a horse -- and suggested a male-female dichotomy. What was the meaning of this? Neither of these animals were hunted and, although Lascaux and some 300 other caves are overflowing with images of wild animals, the execution of new images could not have been all that frequent for the caves were apparently in use for extremely long periods. The occasion to

execute another "aurochs and horse" scene must have been very infrequent.
[\[note 2\]](#)

... folklore and thesis

Leroi-Gourhan, in *The Art of Prehistoric Man in Western Europe* (1968), writes:

"To take what is known about prehistory and cast for a parallel in the life of present-day people does not throw light on the behavior of prehistoric man."

Of course, this -- reconstructing prehistory on the basis of contemporary behavior and thinking -- is exactly what has been done anyway. The reconstruction was started by the Abbe Breuil, early in the 20th century, who (as Leroi-Gourhan notes) formulated the whole of the folklore tradition of Stone Age big-game hunters -- hunting magic, initiation ceremonies, dancing shamans, pregnant horses, nubile naked women -- and even an art-historical development of imagery. Leroi-Gourhan, despite his own warning, does the same by assigning symbolic meaning to the images, expounding a "dualistic concept of the universe, governed by two complementary principles, male and female," as paraphrased by Denis Vialou in *Prehistoric Art and Civilization* (1996).

The folklorish elements can be readily dismissed and, in fact, Leroi-Gourhan has mostly done so in his book. Countering Leroi-Gourhan's thesis of a universal duality, however, will take some additional consideration.

To begin with, these people were not "big-game" hunters, despite the fact that the animals depicted in the caves consist almost exclusively of large herbivores -- aurochs, mammoths, rhinoceroses, horses. (There are also a few bears and lions.) And in addition to the herd animals, fish (salmon) and birds are also to be found. Plants are never depicted. From the evidence of bones at campsites, however, the diet of these hunters consisted almost entirely of deer -- red deer, reindeer, elk, and ibex -- which would have been a lot easier to hunt than the giant aurochs or mammoth. And who would want to go up against a bear or a lion for a meal?

The idea of "hunting magic" can thus be disposed of immediately. This, despite the fact that a number of the animals are shown with spear wounds. Leroi-Gourhan notes that these represent 15 percent of the images. If the images were

meant as magic to aid hunting, we should probably expect a much higher percentage of animals being attacked.

The idea of "initiation ceremonies" was derived from one set of small heel prints, supposedly of children, in one alcove in one cave. This is the sort of single data point through which any number of lines could be graphed. It begged to be equated with initiation rites of contemporary primitives by anthropologists.

Human forms are counted in the hundreds, whereas the herds of animals count in the thousands. The humans include "dancing shamans" and naked headless women (but depicted only by a few curved strokes). They are interspersed with the animal sketches. As a generalization, it could be said that when the figures are male, most, but not all, have the heads of animals. If they are female, they are headless and shown only as a trunk with hips, thighs, legs, and breasts, drawn in a few cursory strokes. The human bodies are badly articulated. They show none of the elegance of the drawings and engravings of the animals.

"At most one or two faces could pass as realistic; the profiles or the full face heads with animal features are even less realistic."

"The outlines [of human figures] are equally improbable and resemble puppets or simple ghostlike silhouettes. The bodies generally lack anatomical shapes, the limbs are poorly joined or out of proportion."

-- Denis Vialou

The naked (female) human figures, coupled with occasional pregnant horses or bison, would, from our modern perspective, suggest the fecundity of nature, but I really doubt if the Cro-Magnon cave painters had anything like this in mind, and certainly not as a universal concept or a symbol, for there are no copulation scenes and no calving scenes.

To art historians, the drawings initially suggested a progression from primitive depictions to more developed forms. This last concept was shattered with the discovery of Chauvet Cave in 1994. The cave has without a doubt images of the highest "aesthetic quality, [and] technique" (Vialou), yet it is the oldest decorated cave, dated to 31,000 years ago.

To Leroi-Gourhan there is a very slow progression in the depictions, suggesting a continuity of mythical concepts. He observed that over the course of 20,000

years the Cro-Magnon never "reinvented" (his words) the symbols for their rituals, but only evolved them (this is astounding).

"The first thesis that we shall defend here is that the evolution of European Paleolithic art is homogeneous and continuous and that it implies a cultural continuity and homogeneity of the human groups that produced it."

I would agree. On the other hand, there is a progressive development of tool fabrication and other innovations, including many instances of regional "fashions" which often spread elsewhere, and which only stops after 10,000 years ago (8000 BC) -- seemingly evaporating and disappearing, as others have noted. What doesn't change is the understanding of what the depicted herd animals represent. [\[note 3\]](#)

To Leroi-Gourhan the cave depictions becomes evidence for a single mythology and a single symbolic expression. And it is here that I disagree. The very fact that the methods of depiction and the compositional model remain the same over an absolutely astoundingly long period of time -- although there are regional differences -- is what makes Leroi-Gourhan's thesis fail. As I will develop in later chapters, these people simply were not like us in their thinking. We cannot attribute to Cro-Magnon a level of abstraction comparable to modern humans, whose abstract thinking spins wildly, changing constantly to evolve to something completely different in the course of a single lifetime or even in a single day. If there is an error in attempting to understand the 20,000 years of cave art, it is in attributing to Cro-Magnon the ability to think abstractly.

Thus I disagree with giving these people credit for "universal concepts" or for a developed mythological system and an attendant symbolism. Over the following chapters I will argue, based on the work of Julian Jaynes, that our ancestors were incapable of extending their imagination to abstract metaphorical thinking until after 1500 or 1000 BC. The Sumerian, Akkadian, and Egyptian languages were "concrete from first to last," says Jaynes. So was their thinking, in that thinking is embedded in language. Only after about 1500 or 1000 BC do we see a more extensive use of similes, and with that the rise of the symbolic use of language through the use of metaphors. [\[note 4\]](#)

The possibility of a people without the imagination (subjective consciousness) to conceive of symbolic equivalents or formulate a mythology to explain their existence -- as Leroi-Gourhan holds -- will be hard for many readers to comprehend, for all of *our* reasoning is by metaphors and we simply cannot

imagine any other way of thinking. Symbols for us are the shorthand of abstract thought. [\[note 5\]](#)

It would be reasonable to suggest that the Cro-Magnon humans couldn't conceive of any abstractions; they were capable of comprehending only specifics. They could certainly be expected to be resourceful, inventive, curious, creative, friendly, chatty, capable of extensive dialogues on relationships, plants, animals, and geography, but otherwise of a mind totally defined by the visible environment. And, to our benefit, they had a singular urge and need to paint caves at long intervals, which they did for a span of 20,000 years without once reconsidering what they were doing. The cave painting stops only when the climate changes in Southwestern Europe to that of a near desert after about 8000 BC, and Cro-Magnon migrates away from the limestone caves.

If the drawings in the caves cannot to be understood as symbols, then they need to be seen as transcriptions from the specifics of reality. But what were these people seeing that needed to be recorded? And why did this need to be recorded at all? Before attempting to answer these two questions, I need to supply a few more details about the caves and the drawings.

... cave art details

There are, in all, about 300 decorated caves in France and Spain (with a few elsewhere), mostly located in regions which are filled with limestone caves. The dates span almost the whole of the time since the first arrival of Cro-Magnon in Western Europe (40,000 to 35,000 ya), starting in about 31,000 ya and ending a little more than 10,000 ya (thus about 8000 BC). The selection of new caves to decorate happened regularly, with some clustering at the Gravettian culture (28,000 to 23,000 ya) and at the Magdalenian culture (17,000 to 14,000 ya), which last includes Altamira and Lascaux.

Thus, on average, a new cave is selected for decoration every hundred years, or a little less frequently, and then it is left behind. At least, this is true for the earlier caves. For a few caves we have accurate dates for when they were revisited. Chauvet Cave (dated 31,000 ya) was reentered four thousand years later. Cosquer Cave (dated 27,000 ya) was revisited to draw animal figures eight thousand five hundred years after it was first marked up with lines and finger scrawls. On the other hand, some 100 "lost" oil lamps have been found at the relatively late Lascaux Cave (dated 17,500 ya), suggesting repeated visits to the

cave by large groups of people. Cave art was never erased or vandalized. [\[note 6\]](#)

The same form of depiction is used for the animals for 20,000 years. They are shown as herds. There is a cave of elephants. There is a cave of reindeer. Elsewhere it is a mix of animals, but always they are on the march. Even bears and panthers are shown following each other in lines. They are seldom in groups larger than a dozen in any particular location in a cave, even though the drawings and engravings may cover every available surface. Drawings are often separated by species. The animals move in both directions, often overdrawn on each other. Animals of different species are indiscriminately mixed and all the figures vary in sizes, as if to suggest a receding perspective for some animals, although this is reversed for superimposed images (small drawings in front of larger ones). All the animals are shown in profile.

"Palaeolithic cave art, the art of the big-game hunter, depicts neither hunting, the hunter, nor the hunted animal. The protagonists are close, and touch, but they do not see each other. Animals and humans completely ignore each other on the walls, as if they were floating in space, in a purely imaginary universe."

-- Denis Vialou

"Floating in space" is an apt description, for none of the drawings are grounded. The animals look like cutouts pasted to cave walls.

"They appear to be suspended in midair with no base line depicted, outside any context -- no landscape, no housing, no scenes involving people and animals."

-- Jean Clottes and Jean Courtin (1996) [\[note 7\]](#)

Others have additionally noted that many of the animals have their hooves turned back, if hooves are shown, so that the animals certainly are not standing. They appear to be lying down or dead.

In addition to the figures, there are symbols, something which is entirely absent from rock face carvings and depictions of animals in rock shelters throughout the same region and throughout the same period of time. The symbols are of four types:



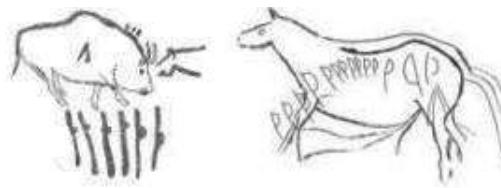
[Image: Left, hut-like signs: Font-de-Gaume Cave;
right, rectangles: Altamira Cave.]

- Hut-like signs which were earlier thought to represent housing, called "tectiforms." About 50 have been found, generally using the same form for a particular cave. (See image above.)
- Single chevrons (inverted V) shown on the flanks or shoulders of animals, at times with a long central line, making it look like a spear thrust into the animal.
- Dots and bars, in groups or in a line, almost always associated with animal images. These appear by the hundreds.



[Image: Geometrical claviform markings, Spain and Southern France.]

- Strange lines with loops, described as "claviforms" -- shaped like the letter "P" -- consisting of a vertical line with a circle touching it near the top or a second line which angles up from near the bottom and loops across the straight line. About 50 have been found, in widely separated regions in six caves.



[Image: Left: Bison with claviforms, dots, and a chevron marking; Pindal,
Spain.

Right: Horse with 14 claviform signs, Trois-Frères, France.]

Archaeologists have interpreted the claviforms as "boomerangs, clubs, axes, stylized female figures, rods with attachments" -- with some suggesting these forms to be part of a system of enumeration, for they are also found near sets of dots and at times repeated across animals.

Enumeration seems to me to have the most value, but to prove, for example that the claviform symbol stood for a larger number representing some count of single dots, would require a detailed look at the marking of hundreds of caves. If one counts on fingers, phalanges, or knuckles, the larger accumulated number would be represented by a single hand (or two). This might be 5, 10, 12, 16, 20, 32, and larger sums -- all forms which seem to have been used in antiquity, which suggests that this is likely true also for remote antiquity (see endnotes of Appendix A for some details). The Basque, a people indigenous to the region of northern Spain where many caves are found, have an old system of cyphers for enumeration (used by millers), which uses the line with a loop claviform sign to represent 20.

Except for Leroi-Gourhan's questionable thesis of the symbolic depiction of the male-female dichotomy of the Universe -- a Cro-Magnon Universe limited to people and game animals -- there is no other current explanation of the painted animals or the markings. Descriptions tend to be augmented with formalist analysis in the vein of art criticism and appeals to vague desires used to explain the urge to create graffiti today.

Denis Vialou writes, about the depictions of humans: *"... there seems to be a deliberate desire to move away from ... visual objectivity."* About the early scribed finger marks of Cosquer Cave, Clottes and Courtin write: *"the intention ... can only have been the appropriation of underground space,"* and about hand marks: *"The hand expresses personality, the presence of an individual. ... these hand stencils are no doubt filled with the deepest significance."* The objection to any such readings is, first of all that this is nonsense, and secondly that "individuality" is a very late philosophical concept, entering common thinking only in the last few hundred years.

It is apparent that no one knows what to make of all this. And indeed it is a giant puzzle. How and why did these people persist for 20,000 years in the same process of cave depictions at intervals separated on average by a hundred years?

... signs in the sky

What I will suggest here is that the Cro-Magnon people were recording the display of an infrequent and absolutely astounding celestial event. As an approximation of how frequently these events happened, we could divide the time span of 31,000 ya to 11,000 ya (20,000 years) by the number of caves (about 300), and suggest that at the most these events happened every 66 years.

But in the whole of the area where the caves are found -- from the Rhineland to Southern Spain -- there are perhaps four (or more) geographically isolated regions. This suggests that perhaps four or more separate "ceremonial centers" might have existed at any one time, and possibly the event was only celebrated once every 100 years or more at each center. Additional caves continue to be found every year, however. [\[note 8\]](#)

Today we would not consider an extensive journey by foot across half of Europe -- complete with families, baskets, nets, and kitchen tools -- as a particularly desirable undertaking, even if this were only done once every other lifetime. We would prefer to have a local "ceremonial center." On the other hand, it might be fun. And in the Upper Paleolithic, as in all of antiquity, distance was never an obstacle. So it is possible that people from a large area traveled to and congregated in one place. Food was also not likely to be a problem. Considering that today the Kung of the Kalahari desert spend only 12 hours a week foraging for their families, there is good reason to believe that large crowds could be supported with locally gathered food in some single region of France.

How these people organized their cave decoration efforts, and how frequently this happened, has to be complete speculation. We know almost nothing of their movements or social interactions. We know more of the Neanderthals. Cro-Magnon occupied Western Europe for 30,000 years without having their numbers diminished or being displaced by other peoples. From the archaeological records of rock shelters in Southern France, which were occupied for brief periods or only seasonally, we can be certain that people indeed moved around quite a bit. As nomads they would have had an awareness of large geographical areas, and we can be reasonably sure that there was active communications between tribes and families. Trade items (stones and shells) which traveled vast distances also document the existence of interactions between separate tribes. [\[note 9\]](#)

What we know for certain is that new caves were decorated every few lifetimes or so. We also know that there was a continuity of the formal aspects of the images, and that many of the graphic signs moved from cave to cave. This points to a cultural continuity between family members across a generation or two. It also starts to suggest that it was the activity of decorating a cave which was the most important thing, rather than the display of images or the ownership of a decorated cave. In this respect, the cave-decorating activity would be little different from what we see of the constant construction and reconstruction of ceremonial centers in Western Europe at a much later date -- the barrows and

henges. None of the cave artwork was ever destroyed. Cosquer Cave, entered 8500 years after it was first marked up with finger lines, was considered a prime location, for there were no animals depicted as yet, and was filled with animal images in about 18,500 ya.

At this point we have to consider some sources for the images, assuming as always, that the humans were imitating something they saw, and casting it in terms familiar to them from their own environment. I'll suggest three possibilities, based on what might have been seen in the skies during the Upper Paleolithic.

- The sight of Jupiter in the day skies when seen as an inner planet (between the Earth and the Sun). Jupiter would display a slim crescent, produced by the light of the Sun on Jupiter's Sun-side portion.
- The sight of Saturn in the skies -- seen as a combination of three or more planets stacked up above each other, and the whole enclosed in a coma shaped to the globes and to their equatorial toroids.
- The sight of an assembly of comets traveling into the inner reaches of the Solar System and crossing Earth's orbit, wildly lighted by their individual comas and the plasma connections between them.

Of these three, the first seems least likely. I cannot really identify a crescent on Jupiter among the cave images. It is possible to suggest that the images of giant aurochs, with their enormous sets of horns, might represent Jupiter's crescent, but aurochs only appear in some locations. And aurochs' horns do not form a crescent. The various menageries seen in individual caves reflect the wildly divergent climatic conditions of Europe over the course of 20,000 years. During Cro-Magnon's occupation of Western Europe, the fauna changed with climatic conditions for periods of 500 years to as long as 4000 years.

The second, the image of Saturn in the skies as the body of a woman, is also unlikely as a cave image, although this image appears outside of the caves as sculptures. The Venus Figurines of the Gravettian (28,000 to 23,000 years ago) - - bulbous, fat, and very female -- and again in the Magdalenian (17,000 to 14,000 years ago) -- skinny, malformed, but still female -- attest to the fact that Saturn was seen, but this image does not appear among the cave paintings. There are, however, numerous figures of naked, headless (and disarticulated) human females scratched into the cave walls, notably without coloration or shading (except for occasional cross-hatching). It would seem that Saturn was thus recognized among the cave art, but was not rendered realistically.

The crudeness of the rendering of the "female forms" is a particular ineptitude which extends far into the future. This extends to figures of males also. As these people were not subjectively conscious, they never formed concepts of themselves in their minds. The same strange disarticulation of limbs and body parts is seen in all the two-dimensional renditions of humans of remote antiquity in the Near East. [\[note 10\]](#)

Our modern day "image" of ourselves is based on a mirror-like concept of how we think other see us (Jaynes). We conceive of other humans in a like manner. Surprisingly, this does not seem to apply to three-dimensional representations, either in the European Gravettian or much later in Sumer or Egypt. The failure to make changes in the cave-art depictions -- over a period of 20,000 years -- is an additional sign of the lack of subjective consciousness. As Leroi-Gourhan suggested, the cave drawings were never reinvented.

At least, that was the opinion I held until 2011 when I again plotted a survey of dates for the caves against a graph (in this case) of the "Fractional global radio-carbon since 50,000 bp" which I have used earlier in this text to validate that there were no Venus Figurines made during the Solutrean period (24,000 ya to circa 17,000 ya) -- meaning that Saturn was not seen near Earth, or possibly that Saturn did not interact with Earth for 7,000 years. That turned out to be so, and was soon validated from other sources.

Information on the decorated caves of France and Spain has advanced considerably since I first started researching nearly a decade ago. Peter Peregrine and Melvin Ember in *Encyclopedia of prehistory, Volume 4* (2001), mention the following about the Solutrean period:

"No examples of cave art can be definitely attributed to the Solutrean period, but there are several cave art sanctuaries whose only associated cultural deposits are of that age. They include such important sites as Chufin, La Haza, and possibly La Pasiega in Cantabria, El Buxú and Peña Candamo in Asturias. Many other cave art sites have Solutrean as well as Magdalenian occupation levels."

By "occupation levels" Peregrine and Ember mean the slight evidence of lost artifacts and carbon remains of fires and torches. Except for the mouths, the caves were not used for living quarters.

Because there is an 8,000- to 10,000-year gap (from 27,000 or 24,000 ya to 17,000 years ago) in the carving of the figurines, it would seem that Saturn

remained unseen for an extended period. There is a gap in the cave drawings also, as I have indicated above. We would have to conclude that there was a relationship between sightings of Saturn and the herds depicted in the caves. But it is time to ask, why the herds of animals?

I presume that the animals are, very simply, the display of a concentrated group of asteroids in plasma discharge -- that is, comets. It must have been absolutely spectacular, an event only sporadically repeated, and thus always unexpected. Most likely this would be a large number of objects pulled out of the asteroid belt, which Saturn had passed through many times, and perhaps recently. Jupiter, in its later single passage through the asteroid belt managed to acquire 1800 or so followers which remain today, divided up into two groups each one third of an orbit removed from Jupiter, called the Trojans and Greeks. Neptune has a few of these. Mars today still has a half dozen Trojans. Saturn, in its many passes through the asteroid belt, might have had many followers whenever it appeared in the inner Solar System.

To the Cro-Magnon the question must have occurred, What are these? There were only a few answers available from among their environment of mountains, rocks, rivers, plants, animals, and other humans, and only the concept of animal herds would answer to all the details of what was seen. The objects moved across the night sky in unison like a herd of horses, bison, or deer, they were of diverse sizes and shapes, some had horns, others did not, some had tails -- and some were obviously in front of others.

Comparing the record of the frequency of comets seen today against the frequency during, for example, Roman times, shows that comets have appeared less and less frequently during the last two thousand years. Rome recorded 50 comets per year. Today we seldom see a comet. If the display of animals in the sky was only infrequent then there might have been hundreds of thousands to be seen 30,000 years ago.

I am not proposing that the skies were filled with comets on a daily basis. Because anything seen all the time would not have been noted as spectacular and would thus not have required commemoration. What I am suggesting is an occasional overwhelming display -- like repeating "meteor showers" which we still have today. The "meteor showers" seen today are microscopic dust from prior disintegration of comets (meteors) which only shows when the dust electrically brightens on entering the Earth's ionosphere.

Some of the "swarms" of meteor dust, which the Earth passes through currently, only become spectacular at long intervals. The Leonids, for example, is a cloud of meteor dust which the Earth passes through between November 13 and November 21 each year. In most years, the display amounts to only a few streaks in the sky every couple of minutes. In AD 1833 there was a spectacular display of 100,000 to 200,000 per hour -- at that time it was the largest meteor shower seen in modern times. This repeated 33 years later in AD 1866-1867 but was not seen in AD 1899-1900. The spectacular display of the Leonids otherwise repeat every 33 years, returning again in AD 1933, 1966, and in 1999. The dust and particles travel with comet Temple-Tuttle -- which enters the near reaches of the Sun every 33 years. There are a dozen well-known meteor showers.

The meteor showers, today, are the last remnants of larger, earlier swarms of asteroids traveling on elliptical paths which crossed the Earth's orbit. Today the "showers" are created by the dust entering the Earth's upper atmosphere. In the past, the plasma discharge between large concentrations of asteroids would have been spectacular. Moving across the sky, but stationary with respect to each other, the only analog for Cro-Magnon would have been a herd of animals seen from afar. This is why the species depicted in the caves change over time and by location. The cave drawings were not made to depict species which could be hunted (and were not), but to depict the slow passage of immense herds of celestial animals. All were shown in profile because they were on the move -- or dead.

The drawings are totally modern by our standards, with a sophisticated feeling for outline and shading -- unequaled again for thousands of years. At the age of ten, Picasso crawled into one of the caves in the company of his father, a painter, and the Abbe Breuil. It changed modern art.

Cro-Magnon applied all of their science, which wasn't much, to the depictions. Probably their most advanced intellectual accomplishment, aside from their social skills, their lithic industry, and their knowledge of the environment, was an ability to count. The many dots and bars, found adjacent to and on the animals, likely represent just that. The claviform marks could be added to the counts also.

Five thousand years after the last cave was painted, the Egyptians of the first dynasty, 3050 to 2850 BC, do the same: they count the small and large cattle of the God Horus (Mars), and record the counts, which in one year added up to 400,000 large and 1,200,000 small animals, plus 120,000 "captives" -- figures

far in excess of anything that either warfare or the economy of Egypt could have supported if these reflected earthly animals and people. Mars, before assuming an orbit among the inner planets, traveled into the asteroid belt also.

The cattle of Mars are noted again in the 8th century BC, when Mars again cruises close enough to Earth to be clearly seen and delivers devastating electric arcs to regions of Earth. In India the cattle are held to be the seven warrior companions of Indra (Mars), called Maruts, the "terrible ones." The Bible calls them the "heavenly hosts of the Lord" (Joel and Isaiah). They thus were seen for 2600 years. Much of this might have been dust and rocks. Late in the 20th century AD, telescopic studies revealed six large objects still following Mars in its orbit.

When asteroids interacted with each other, it would have been with streams of plasma. Comet Biela in 1846 sent a lance of light at right angles to its path to a companion comet, across 155,000 miles (250,000 km). In 1852 a brief bridge of light connected the heads of the same two comets over a distance of over a million miles -- four times the distance between the Earth and the Moon. Cro-Magnon recognized the streams of plasma from one comet to another as a spear thrown to wound some of the animals. But since animals do not throw spears, he invented celestial humans, often with the heads of animals, as the agents. Wounded animals are shown with chevrons, some are shown with embedded spears.

Still we have only a slight idea why the herds of animals needed to be recorded. It is possible the close passage of streams of blazing asteroids (comets) would have been accompanied by meteor impacts, detonations like the AD 1918 Tunguska event, or fire falling from heaven (with dust from the decay of the comets which might have entered the Earth's atmosphere). It is difficult, however, to see the cave painting activity as some means of warding off evil -- that is, as magic. A belief in the efficacy of such preventive activities is a very late cultural development, clearly dating to after 1200 BC. It would be simpler to suggest that the animals were painted simply because they were seen, and were not seen very frequently. [\[note 11\]](#)

None of the caves were occupation sites; apparently the Cro-Magnon painters did not even bring a bag lunch. But the images in the caves, when seen by others, lighted by fires, oil lamps, or torches, would have recalled the night sky during the few months, years earlier, when large "herds of animals" roamed the skies.

At this point I have drifted the speculation as far from the data as Breuil did earlier in the 20th century, but I have gone in a different direction, assuming that these people were not at all like us and cannot be compared to contemporary "primitives" like the Eskimo, Bushman, or Australian Aborigines.

Additional speculation might indicate that we see in this imagery the first suggestion of the sky as a place -- among the stars -- for the after-life for dead animals, which over the course of 30,000 years will extend to humans. After 10,900 BC, a new way of securing life after death will be demonstrated by new images in the skies. The forms will change again after 4077 BC, and again after 3147 BC. Although the Egyptians will democratize the concept of living forever in the sky, it never catches on among the Greeks and Romans until the advent of the salvation religions. In the *Odyssey*, Hades is described as a place of the miserable walking dead.

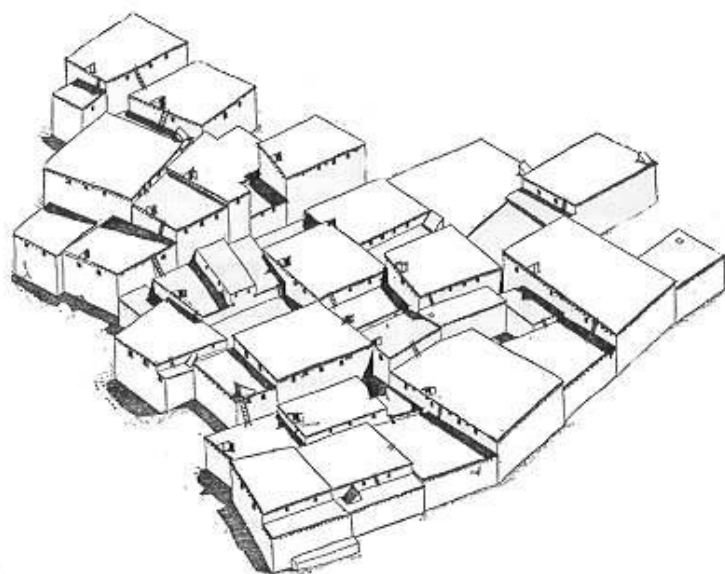
If fear did not motivate the Cro-Magnon, if appeasement of celestial herds was not an issue, then what drove these people to repeatedly create the cave artwork? Except as speculated above, I have absolutely no idea. But the pride and sheer joy of making images, which we also see in the spear throwers decorated with carved animal figures, is an appealing concept.

For "public art," as opposed to portable objects, pride in the creations would sooner or later require that the work be identified with the creators. A suggestion, made by the researchers of the early 20th century, but which has since fallen into disfavor, is that the "tectiforms" symbols found in some of the caves represent housing -- and thus the signs would have the value of a signature particular to a clan or family. These appear late, in the Magdalenian after 18,000 ya, at Altamira and other locations. It is a suggestion which might again be entertained. [\[note 12\]](#)

The Sky at Catal Huyuk

Catal Huyuk is a village in Central Anatolia, which was partially excavated in the 1960s by James Mellaart. It is currently (since 1993) being excavated again. The occupation dates are from 7500 to 5700 BC (2015 data), after which it was abandoned, for what reason we do not know (although the abandonment coincides with a severe drought in the Middle East). The village lasted for over a thousand years. What is unique about Catal Huyuk is the decoration of houses with sculptures and murals, many of which have been reconstructed. Today

Catal Huyuk is recognized as one of the primary archaeological sites in the world representing the early Neolithic. [\[note 13\]](#)



Based on a reconstruction by Orrin C. Shane III

[Image: Catal Huyuk, Central Anatolia, 7400 to 6200 BC. This artist's rendition represents the excavation of a few percent of the mound by Mellaart. Not shown is the mound of dirt behind this set of houses. After Mellaart.]

Catal Huyuk is of interest to the Saturnian Cosmology thesis because of the date range of its existence, 7500 to 5700 BC. During this period Sunlight was no longer blocked by dust in the stratosphere, but a coma surrounding and below Saturn might have obscured the stars. The Sun would probably have been seen. The imagery of Catal Huyuk could thus be expected to reflect what was seen in the skies as the Earth had moved below the orbit of Saturn, and below the level of the Sun.

What had also happened since 10,900 BC, was the generation of three brilliant ball plasmoids in the far south, which rotated into view on a daily basis. From the ball plasmoids lines of blazing electrons streamed through the sky past Earth and toward the north, surrounding the Earth. Only three or four were visible anywhere on Earth in the overhead skies. Details will be presented in the next chapter. As could be expected, these will show up among the wall decorations at Catal Huyuk.

I should also again introduce the notion of the Absu, which I mentioned in a previous chapter. There I suggested that the Earth would most likely have had

rings of material above its equator, much like all the outer planets, and which probably looked like the rings of Saturn. Later (much later) testimony supports this, and it is especially noted when, in 2349 BC, the rings disappeared, dispersing or falling -- an event which was universally held to be a flood of the celestial "ocean," and known as the "flood of Noah." "Absu" is the Mesopotamian word for the rings; it translates as Abyss -- the Deep.

People living in the northern hemisphere would have seen the rings in the southern skies at night. Egyptians describe the rings, which they called the "Duat," as composed of spoked rings, looking like reeds growing in a swamp. At the latitude of Egypt, Mesopotamia, or Anatolia, the rings would have stood some 40 or 50 degrees up in the sky, below the semicircle which defines the equatorial, reaching from directly east to directly west, and standing up from the south at an angle determined by the latitude. The rings would all meet at the east and west cardinal points of the horizon (bunching together). At night the Absu was brilliant and clearly seen because the rings would have been lighted directly by the Sun (from the daytime side of Earth), except where the shadow of the Earth fell on the Absu, which created an arch or gap which traveled nightly from the east to the west horizon. Only a few bright stars shone through the rings or the shadow area.. [\[note 14\]](#)

During the daytime the Absu would have disappeared from view for the Sun would light it from behind and the rings would have merged with the daytime sky, just as the shadowed portion of the Moon disappears today during daytime. During part of the year when the Sun dipped low in the winter, it too would have been obscured by the rings. No rings were ever seen in the northern skies.

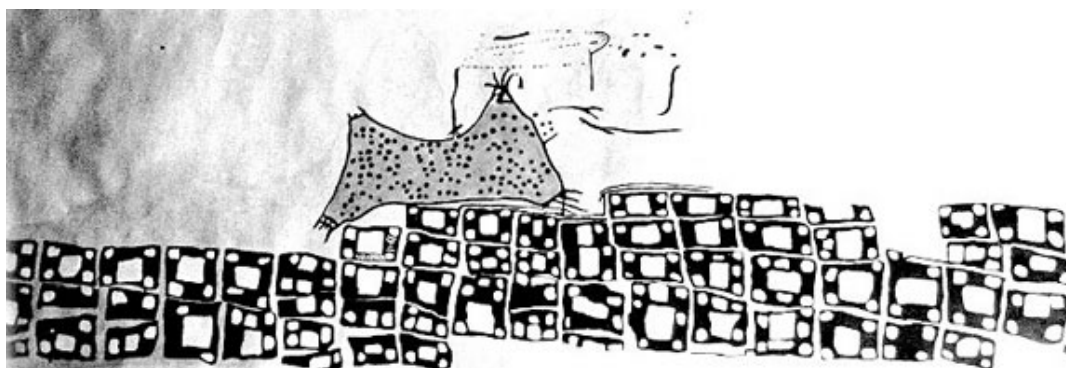
The description I have offered above can be verified from Mesopotamian, Egyptian, and Maya sources, and can even be suggested from the mound construction of some North American Indians. (See a later chapter for more details and size estimates for the rings.) Because they were always there the rings were never specifically noted. They were a landscape feature, like mountains and rivers, but always moving, at different speeds, with some rings moving backwards. The humans, as a result, thought of themselves as living in a valley bordered by a sea in the south. Since the rings were a constant feature of Earth, from remotest times to 2349 BC, an understanding of what else was seen in the skies in antiquity cannot be divorced from the sight of the rings. At Catal Huyuk, in a region well away from an ocean, the rings appeared to have represented a wall instead of water.

At the time of Catal Huyuk, three sights would have appeared in the skies above. The first of these would be the Saturnian planets, rotating from east to west on a daily basis in a large circle between the equatorial and the North Pole and progressively moving further north in the skies. This would already have been in progress by 10,900 BC, three thousand years before Catal Huyuk.

The second would be the streams of electrons connecting the southern ball plasmoids and Saturn. This would have happened three times for a period of 2500 years, between 10,900 BC and 8347 BC. The occupation of Catal Huyuk dates from 7500 BC to 5700 BC -- thus 1000 years after this period.

The third would be the crescent of Jupiter during the day, still close by the orbit of Earth, but viewed from below as the Earth was positioned below Saturn.

Each of these seem to be presented in the murals and sculptures of Catal Huyuk, although some of the imagery might be very old iconography, dating to one or two thousand years before the founding of Catal Huyuk, but kept alive through tradition.

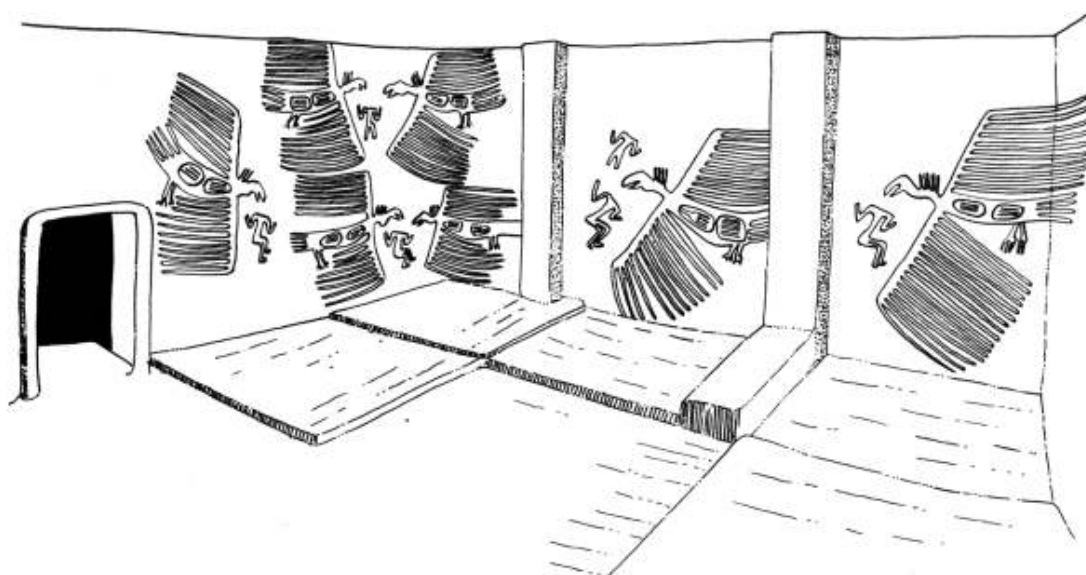


[Image: Catal Huyuk, Central Anatolia, 7500 to 5700 BC.
City plan mural. After Mellaart]

One hint at a remembered past is what appears to be an image (a mural) of a plan view of a village with two volcanoes in the background. This is suggested to actually be a view of the twin peaks of the currently inactive volcano of Hasan Dagi seen from the proximity of the village of Asikli Huyuk, some 100 miles (160 km) away. Asikli Huyuk was abandoned a thousand years before the founding of Catal Huyuk, although the two volcanoes were, of course, still in existence.

... the vultures

Catal Huyuk also had a fascination with vultures, shown in murals as giant birds, rendered in red, biting after headless corpses. Some vultures are depicted with human feet, actually a close approximation of vulture feet. There are wall sculptures of breasts which include vulture beaks breaking out to form the nipples. This is an obscure iconography.



*[Image: Catal Huyuk, Central Anatolia, 7500 to 5700 BC.
Vultures depicted reaching for headless human bodies.
The originals are drawn in red. After Mellaart.]*

Where did this imagery come from? I don't know. Giant bird imagery occurs elsewhere in the world, but especially in remote antiquity. One suggestion would be that perhaps this represents what was seen of Saturn and its companion planets during the period when Earth's orbit was slowly falling further below Saturn, and Saturn was thus describing a daily flight from the east to the west, eventually to settle into a smaller circle of rotation in the sky around the North Pole.

Thus a likely suggestion is that the bird imagery directly represents Saturn which during this period would traverse the sky from east to west (actually the result of the Earth's rotation). Certainly the beak-like profile of the planet Uranus would suggest a bird-like image. Thus the image of Saturn as a giant bird would not be unexpected, although elsewhere (and not always) the bird is represented as seated rather than with spread wings.

This bird form, as a vulture, eagle, or hawk, is a religious icon which retains significance throughout the world, far into the future. Although it has been noted by others that the source for this might be Saturn with its rings after 4077 BC, I would suggest that the bird image showed up much earlier.

In Egypt the name-serekhs of the pharaohs are surmounted with a seated hawk. Hierakonpolis (Nekhen) in Egypt, an early religious center, is known as the City of the Falcon. Although equated with Horus in Egypt, which we think of as Mars, it is likely that the hawk originally represented an image of Saturn seen in the skies in its slow transition to a position near the North Pole of Earth. Then every day for 5000 years (from about 9,000 BC to 4077 BC) it would have been seen moving through the skies from east to west -- as a shadow during the day or as a lighted object at night. [\[note 15\]](#)

The vulture's beak represents the planet Uranus. The notion of this image being a bird or bird-masked person dated back to the previous generation of Venus Figurines which show figurines with an extended neck and the beak of a bird (and also with wings, as Gimbutas noted for the period of 7000 to 3500 BC). Even well over two thousand years later, after the "figure" in the sky had disappeared, carved and molded figurines throughout the world continue to be depicted with beaks and bird masks.

Likewise the fact that the vulture frequently is shown with human legs and feet recalls the legs of the Venus Figurines, although these were never depicted with feet. The two lozenge-shaped emblems on the breast and belly of the vultures at Catal Huyuk might depict the planets Saturn and Neptune stacked above each other, glimmering through the surrounding coma. [\[note 16\]](#)

I cannot place the headless corpses at which the vultures of the murals are snapping, except to the worldwide notion that corpses, just like dead animals, moved south along the electron beams. This had been seen worldwide since 10,900 BC.

The other element in the sky which demanded representation was the three plasmoids in the far south skies. These would not have been clearly seen, for they would have been obscured by the equatorial rings. The "teddy bears" found as wall decorations might qualify for these. [\[note 17\]](#)

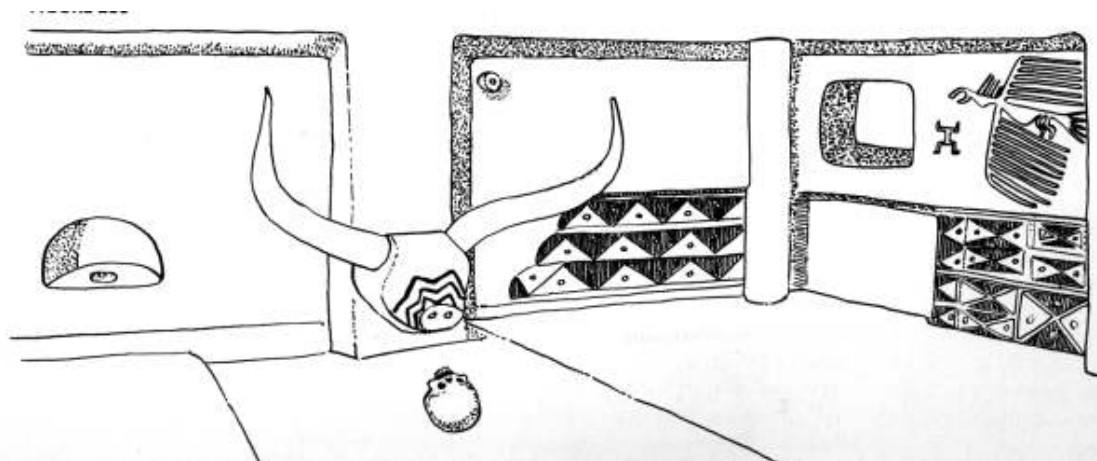
There are clear reference to the lines of electrons which spanned the sky from north to south. But in only two clear instances is some sort of vertical graphic depicted, although there are a number of other similar depictions.

I have suggested, in fact, that the lines of streaming electrons (which would have connected the plasmoid in the south with Saturn in the north) only appeared three times over a span of 2500 years. If the image above does indeed represent the electron lines then the "bricks" shown above could represent the Absu. Note that the design nearly repeats an illustration by Anthony Peratt in "Characteristics for the Occurrence of a High-Current, Z-Pinch Aurora as recorded in Antiquity," (*Institute of Electrical and Electronics Engineers, Transactions on Plasma Science*, 2003), which he identifies as a "pinch instability characteristic." Peratt shows this depicted as a petroglyph on page 1200 of the Journal. Peratt and his analysis of petroglyphs will be discussed in the following chapter. [\[note 18\]](#)

It could likewise be suggested that the curious crosses and hooks shown attached to the sides of the three wavy columns are heteromacs, traveling individual fractal dendritic (electric) structures, identified in the *Chilam Balam* as the sweepers of the roadways, as apparently likewise in Neolithic England. (Detailed in the next chapter.)

... the aurochs horns

The overwhelming display at Catal Huyuk (as found by Mellaart, and since by the current excavators), however, is the profusion of six to ten foot wide spans of aurochs horns mounted horizontally on walls and also facing up on "altars."

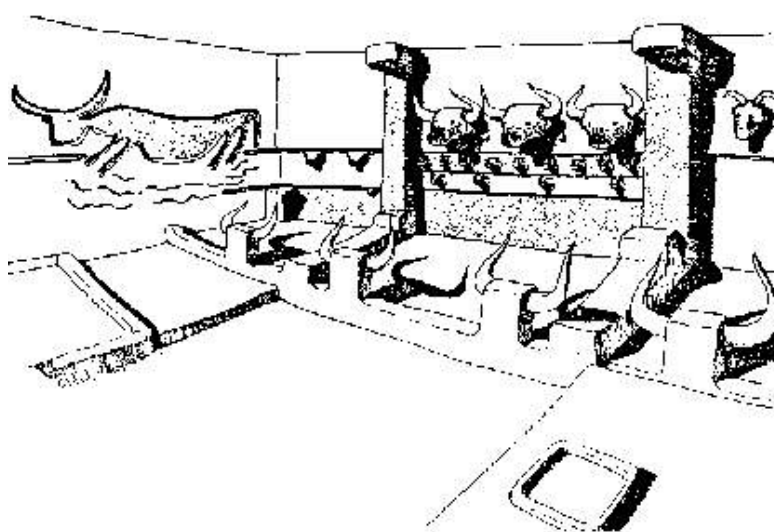


[Image: Catal Huyuk, Central Anatolia, 7500 to 5700 BC.
Wall-mounted aurochs horns. After Mellaart.]

Although it might be suggested that the crescent shape might represent the lighted crescent rotating on the edge of Saturn, which certainly was the case at a

later date, I am more inclined to suggest that the lighting of the edge of Saturn had to await the clearing of the skies surrounding Saturn in 4077 BC -- the chaos in which Saturn was enveloped, a plasma in glow mode.

I would thus suggest that Jupiter was the source for the horns and bucrania (horns attached to skull tops) used for these wall sculptures. As stated in the last chapter, Earth, traveling on an elliptical orbit (with Saturn), would alternately be located inside and outside the orbit of Jupiter. The orbit of earth would frequently be outside and below the orbit of Jupiter, which would have been seen as a gigantic crescent moving through the skies, in effect looking like the horns of an aurochs. [\[note 19\]](#)



*[Image: Catal Huyuk, Central Anatolia, 7500 to 5700 BC. Wall mounted aurochs horns and freestanding "horns of consecration."
(Mislabelled as "horns of concentration".) After Mellaart.]*

A crescent would be seen because Earth at this time was at a location below the orbit of Saturn, and thus below the ecliptic on which Saturn and Jupiter traveled. Only the bottom of the area of Jupiter facing the Sun would be seen, looking like two upturned cattle horns. Like the crescent Moon, the remainder of the globe of Jupiter would not have been seen during the day. If the crescent on Jupiter had been a regular phenomenon, it would not have been considered significant enough to be reproduced in sculptures and murals. Since there is no reason to think that the orbit of Earth (and Saturn) and Jupiter had fallen into a harmonic relationship, the appearances of the horns might very well have been unpredictable. Jupiter might have been entirely absent for years. This is of course precisely the condition under which humans would make the image into a

god or an animal god. The unpredictable behavior presumed that the object in the skies was alive.

The bucrania are not associated with either the vultures or the figurines (described below), neither here in Anatolia nor anywhere else. Elsewhere, and later, bucrania appear as symbols associated with tombs, as in predynastic mastaba tombs in Egypt (circa 3000 BC), where aurochs horns are, in one instance, placed on the enclosing wall, and elsewhere, as for example, in Sardinia 4000 - 3000 BC, where horns are used to decorate the outsides of rock tombs. Their association with altars is seen in Roman times. The horns were a contemporary image in the sky during the time of Catal Huyuk, and continued to be seen traveling across the day skies up to 3147 BC.

... hunting deer

There is a fourth mural, depicting the hunting of deer. The iconography of deer herds is out of place, for there were few deer in the vicinity of Catal Huyuk, and their bones seldom appear in the rubbish heaps. There are more horse bones than deer bones, but horses never appeared in a mural.



[Image: Catal Huyuk, Central Anatolia, 7500 to 5700 BC.
Mural showing the hunting of deer. After Mellaart.]

It is doubtful that the mural shows humans hunting deer. It is more likely to represent a translation from something seen in the sky as a celestial apparition. The fact that deer are shown might be totally coincidental if the image reflects

conditions which had first appeared and been "represented" perhaps thousands of years earlier. At an earlier time, herds of deer might have been the logical simile for large objects traversing the sky periodically -- or sporadically -- not unlike the herds recorded in the caves of Spain and France a few thousand years earlier. Certainly anything seen as animated in the skies would be understood as an extension of what was normally experienced on Earth.

I have suggested earlier that these were most likely asteroids in plasma discharge -- in effect a display of comets bunched together in a group traveling with Saturn into the region of the inner planets. Thus the depiction of hunted deer may be an icon from a long ago time when celestial hunters shot celestial lightning bolt arrows at herds of celestial deer. [\[note 20\]](#)

We can be reasonably certain that asteroids were still periodically traversing the Earth's night skies at the time of Catal Huyuk. Imagery like this, large herds, is shown also on Egyptian predynastic artifacts (knife handles and palettes) and, during the first and second dynasty, the herds were counted and recorded. The deer-hunting scene would make sense as the "appropriate" image for depicting this.

... figurines

Today hundreds of animal, male, and female hand-held sized statues have been found at Catal Huyuk, most often retrieved from garbage heaps. Because of the strange distortions, many are simply called "humanoid." The distortions are probably the result of seeing Saturn from a changing perspective, or guessing at the earlier shapes of the ball plasmoids seen through the obscuring Absu. In the period during which Catal Huyuk was occupied, Mars (below Saturn) would have become indistinct within the larger coma of Saturn seen from below. As a result, the figurines became seated rather than standing. The head of a baby being delivered by a few of the figurines is probably Mars seen against the larger coma representing the lower body of the figure seen in the skies. [\[note 21\]](#)



*[Image: Catal Huyuk, Central Anatolia,
7500 to 5700 BC, seated figurine.
After Mellaart.]*

What is of interest about Catal Huyuk is that after the period of circa 6700 BC, no male figurines are made. James Mellaart, in his 1967 book *Catal Huyuk*, mentions a corresponding change in the interior wall decorations, noting, for example that the vultures appear only in the archaeological levels VIII and VII, thus before 6700 BC.

Bleda Düring, of Leiden University, has addressed the transition from the Early Ceramic Neolithic period to the Late Ceramic Neolithic period at Catal Huyuk, identified as level VIA, which falls in the era of 6700 BC to 6600 BC. This time saw changes in house building and city planning and, as Düring writes, "changes in the ceramics, obsidian industries, figurines and wall paintings." It is interesting to note what she writes about the figurines:

"After Level VI no males are portrayed in the figurines, whereas "large" women occur mainly after this level."

Murals and wall paintings change also.

"... the famous "hunting scene" wall paintings of Catal Huyuk all date after Level VI [references deleted]. Some older motifs might have been abandoned during the transition; no figurative mouldings later than Level VI are known."

To Düring the changes speak to a cultural transition, but I would also suggest a change in the interpretation of celestial phenomena. The cultural transition might pinpoint the time when the vulture image in the nighttime sky no longer alternated with the dark shaped coma in the daytime skies. Eventually the Saturnian figure would have been seen rotating above the north horizon throughout the year. The transition would have involved attempts at new conceptualization of the being in the skies, and we could expect a change in the iconography at Catal Huyuk.

There is little certainty to be derived from the dates of artifacts, however, since religious iconography tends to outlast its sources by thousands of years. Initial dates would be more certain. But the cultural change noted by Düring may have involved the influx of new people (as she suggests). The emphasis on depicting only fat women may have been imported. On the other hand, if the cultural

change did not involve a large influx of new people from elsewhere, it is at least of interest that we see the transition in the figurines from male and female to only depicting "large" females at this time. It would indicate a date at which the perspective of Saturn as seen from Earth changed so much that the elongated, standing vulture body became compressed because it was being viewed from further below.

Later Figurines in Anatolia

Increasingly the change in perspective, looking south, but also looking north from Earth below Saturn, would have distorted the "figures" in the sky progressively to become all but unrecognizable. And apparently what we start to see at other locations, is not only a seated lumpy figurine (as at Catal Huyuk), but ones with strange fleshy appendages in all the wrong places. The Fat Ladies of remote antiquity, the Venus Figurines, have now assumed the amorphous shape of a snowman or a gingerbread woman. Facial features, which were never distinct when Saturn and Uranus were seen from a greater distance, now seem to have disappeared altogether, or the head is entirely missing, except for a long neck. If a face is shown at all, it is wearing a mask. These aspects of the figurines are duplicated by the millions worldwide -- the figurines have become amorphous, misshapen, long-necked, headless or masked, and steatopygic. The ladies are either shown as seated or have huge buttocks and breasts which jut out sideways nearly as much as the buttocks.

As others have pointed out, the first transition from naturalistic to stylized figurines can be placed at about 5600 BC. Only at a later time -- after 4077 BC - - do the figurines become even more stylized, with huge buttocks and breasts, and a spindle for a head. Many are now rendered as flat plaques, perhaps to function as amulets to be worn. They are no longer conceived of as a three-dimensional figure; they no longer even look like a fat woman.

What are we seeing here? It is the flat triple snowball plaque which is especially interesting. My inclination is to suggest that the "snowman" woman represent the triple ball plasmoids seen in the far south. The date of the appearance of the triple snowball plaque, 5600 BC, matches dates at Lepinski Vir, 6500 to 5500 BC (see the next chapter for details). The dates, however, are not correct if the last of the ball plasmoids was seen before 8347 BC.

With respect to the northern skies, various people throughout the world describe the Saturnian coma as the "chaos before creation." The chaos was called a

"swirling cloud" by some people, and "fluffy, like cotton" by others. It is consistently described as turning, but this is not Saturn and its coma turning about itself (which would not have been easily seen), but describes the whole mass turning in a circle about the Earth's north star in the sky.

The "turning in the skies" is almost certain, and not just from the descriptions which come down to us from remote antiquity. The Saturnian "cloud" turned in the skies about the North Pole on a daily basis because it is unlikely that the rotational axis of Earth and Saturn lined up, even with the Earth nearly directly below Saturn.

I had earlier assigned the year 5800 BC or 5600 BC as a milepost in the development of the relationship between Saturn and Earth, first, because of a minor change in climate, minor, but a definite improvement. Secondly, there is a clear change in the depiction of figurines (at least, in Anatolia). It is mainly on the basis of these that I have been willing to assign the arrival of Earth below the south pole of Saturn to about 5800 BC.

The turning of Saturn in a circle about the pole star in the sky perhaps lasted for all of the time that Saturn stood in the skies. We have recollections of this from Mesoamerican and Vedic Indian sources.

What I have attempted to plot in this section are the long-range changes in the image in the skies. It started with the chubby Venus Figurines of 27,000 years ago. These represent a view of the Saturnian planets from afar and seen from a low perspective. After 18,000 years ago the figurines elongate and take on slimmer dimensions. I suspect this is the view at an equatorial level to Saturn. Earth had moved up in its orbit, and the planets were seen in a perspective which revealed the true separation between them. Then, after an initial electric field contact in 10,900 BC, Earth started to lower its position in relation to Saturn, and after 9,000 BC the figurines become foreshortened and again assume the dimensions of a Fat Lady in the sky. As I have suggested, the Earth was also much closer to Saturn at this time than it was 27,000 years ago. After about 7500 BC, as the Earth continued to move closer to the rotational center of Saturn and nearer by moving up, the foreshortening increases again and the figurines were now rendered as Seated Fat Ladies.

By 5600 BC the original form was lost from sight altogether, and the figurines resume their abstract features, but these are likely to have another source. At this time we see this snowman shape, plus the headless long-necked forms. The plasmoids of the southern Peratt Column had become the model for figurines.

By about 5000 or 4500 BC Earth was well below Saturn and perhaps moving up to come closer. In the skies Saturn was now located in the north sky and had increased in size. The image of a woman has completely disappeared, and what is seen instead is a nebulous cloud of constantly moving plasma in glow mode.

Throughout almost all of this very long period the figurines (except for the snow-man figurines) maintain certain features -- the nodding head, the bird mask, the lack of a face, the slit eyes, the nakedness, and the missing feet. But for long periods of time the figurines were perhaps as often shaped by expectations of classical models as by transcription from real life.

Endnotes

Note 1 --

Later Homo erectus, and Neanderthals, and other earlier hominids in Europe develop a method of splitting uniformly sized cutting blades from the edges of a preshaped core of flint (with a flattened top and bottom surface). This method changes very little over 100,000 to 300,000 years. This was a vast improvement over the Homo erectus Acheulean hand axe industry, but it is crude compared to the complete lithic tool-kit of Cro-Magnon or compared to their carefully shaped knives and spearpoints.

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Note 2 --

Caves were decorated only at long intervals. For two recently discovered caves, untrampled by modern humans, we have Carbon-14 dates from carbon of fires on the floors and torch relighting sites. Cosquer cave, discovered in 1991, was first entered 27,000 years ago and then not again visited (to add animal murals) until 8500 years later. Chauvet cave, discovered in 1994, was decorated about 31,000 years ago (the Carbon-14 data spans 1500 years) and entered again 4000 years later for an inspection tour.

It should also be noted that the painted areas of the caves (mostly located deep underground) were never used as occupation sites.

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Note 3 --

The disappearance of the Cro-Magnon cultures in Europe coincides with the advent of a dry climate in Southern Europe, circa 8000 BC. Climatic conditions after 9000 BC reflected the northward shift of climatic zones due to the start of the Hypsithermal, so that Southern Europe became a desert zone. After 9000 BC there were vastly improved conditions at latitudes further north. But in Northern Europe there are no limestone caves.

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Note 4 --

Comparing changes in the philosophy, practice, and iconography of the major religions to the implied "worldview" of Cro-Magnon, you may note that, despite the conservatism of the modern religions, the changes in the last 2000 years far exceed any noticeable change in cave decor, figurines, or even tools among the Cro-Magnon over a period twenty times as long.

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Note 5 --

To repeat an endnote from the introductory chapter:

The concept of *subjective consciousness* was developed by Julian Jaynes in *The Origin of Consciousness in the Breakdown of the Bicameral Mind* (1976). *Subjective consciousness* involves the ability to recognize yourself as seen by others -- an "analog I" -- which is internalized and placed into the space of the imagination. This represented a new mental space, based on a metaphorical displacement of the self, and was not seen in use before about 1000 BC.

You can look through the "eyes" of this "substitute I" or even observe yourself from afar in your mind. Biologically, it involves the functional separation of volition and consciousness in the speech centers of the brain. "Memory" and "self-awareness" are not *subjective consciousness*.

Some people never achieve subjective consciousness, yet they appear fully functional. Pre-conscious people are almost indistinguishable from subjectively conscious people. Pre-subjectively-conscious people can learn anything, including mathematics, and certainly they can joke, experience emotions, and carry on convoluted dialogues with each other. However, they rely heavily on the learned admonitions of parents and authority figures ("oughts" and "shoulds") and have difficulty with novel situations.

The concepts are more fully developed in the text. See also the chapter "Language and Causality."

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Note 6 --

Dates for the initial drawings in Chauvet Cave, 31,000 ya, span a range of 1500 years. This might represent the variation in Carbon-14 dating, or it may mean that the drawings were in production for a long period.

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Note 7 --

Jean Clottes and Jean Courtin, in *The Cave Beneath the Sea: Paleolithic Images at Cosquer* (1996). The quoted statement in the text is about Upper Paleolithic cave art in general. One cave shows reindeer swimming through a river. The river is probably the Absu, introduced earlier in the text. Most figures seen in the skies were likely in glow mode plasma excitement, and would thus be seen through the Absu.

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Note 8 --

It has been suggested that most of the caves have eroded and that we have only discovered a small percentage of them. Implicit in this suggestion is that those few caves which have lasted to the present day experienced unusually stable climatological conditions which resulted in preserving images from as long as 31,000 years ago. I doubt this, for although the cool below-ground environment may help to reduce the growth of fungus (which attack the animal fats used as pigment carriers), it is probably much more significant that the artists used some of the most stable and chemically inert substances: red iron oxide, manganese dioxide, and carbon black. Other colors were mixed from these, with the exception of white, for which a clay was used, and which is also stable.

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Note 9 --

Cro-Magnon ranged over Eastern and Western Europe, North Africa, the Black Sea region, and Southwestern Asia, and earlier in Australia. "Cro-Magnon" might be understood as a body type among the great variety of *Homo sapiens*

sapiens.

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Note 10 --

The methods of graphic depiction on two-dimensional surfaces in antiquity differs markedly from our practice. Egyptian graphics are based, for example, on rendering recognizable features, with little regard to physical relationships, not unlike Cubism. Thus eyes are shown as seen frontally even though drawn on the profiles of faces. Breasts and nipples are both drawn as seen from the front, resulting in turning the top of the trunk (and the shoulders and arms) sideways from the face in profile. The navel takes an intermediate location, slightly turned away from a profile view, and the legs are again turned back to a side view. That is how humans looked in the overall: all the parts were there.

Sculpture in the round is a very notable exception to this.

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Note 11 --

In Mesopotamia, spells, prayers, and magical incantations are certainly of a late date, after 1200 BC. The earlier attitude toward the Gods was one of direct communication on a one-to-one basis.

Egyptian funeral spells date from 2350 BC, and perhaps earlier. The content reflects a great antiquity, but their magical use probably dates to after 1500 BC. The early spells reflect the Egyptian attitude toward language and naming of things as actual, that is, not metaphorical or symbolic.

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Note 12 --

Current speculation suggests that the cave paintings are the work of women, since the hand prints which have been found are small. That may just mean that the handprints are of women.

Another twist is the suggestion that the caves were augmented with new images and that images were overpainted and repaired for hundreds of generations.

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Note 13 --

James Mellaart *Catal Huyuk* (1967). Considering the later antics of Mellaart, I cannot quite trust the content of this book.

See [<http://www.catalhoyuk.com>] for reports on the current excavation which started in 1993. After 10 years of a multimillion-dollar excavation, the current task force, which is adding buildings, a museum, permanent covers, etc, to the site, has found almost nothing. (See [<http://www.catalhoyuk.com/newsletters/index.html>].) Contrary to the claims made in Mellaart's book, it is slowly becoming clear that these people subsisted on plants and domestic sheep, with some goats. Only at a later date are grains (barley and emmer wheat) found at Catal Huyuk. The domestication of the aurochs has not been proven yet. It looks more like females were culled from wild herds (which was the practice at other locations). Mellaart's suggestion of excarnation as the burial practice is contradicted by the finds, except in a few instances. No particular trading industries have been found, and it looks like the cache of obsidian which was found was imported in finished form. The "deer hunting scene" mural found by Mellaart seems to reflect wishful thinking or a long forgotten tradition, since almost no deer bones have been found. Additional figurines which have been found are crude to the extreme.

Mellaart was lucky in his excavations and may have extended the finds to overly imaginative renderings of the building interiors, which is the practice among archaeologists anyway, although generally more subdued. (Mellaart is from a family of visual artists.) Mellaart also excavated a large area, whereas the current excavators have limited themselves to tiny areas, and only after ten years of digging realized that such methods were not going to find anything on a par with Mellaart's finds.

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Note 14 --

Radial spokes have been noted for the planet Saturn. The spokes only show up sporadically in the middle set of rings, and have remained incomprehensible to astronomers. The plasma explanation is that the spokes represent outward directed electric discharges (arcing). Thus spokes could be expected for Earth's rings, since the planet was under continuous electric stresses perhaps since the Paleolithic.

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Note 15 --

The vulture image appears on pottery at many unrelated sites throughout the Middle East and Southeastern Europe. It is probably also identified as the "Thunderbird" of the North American Indians.

Absolutely huge shapes of birds with spread wings are constructed as mounds at a number of locations in antiquity, as, for example, as a mound at San Lorenzo in Veracruz, Mexico, dating to 1450 BC, and at Poverty Point, Louisiana, North America, dated to circa 1350 BC, and as a marked up landscape at Nazca, Peru, dated to about 5000 BC. The two bird mounds face east.

Old World vultures are the largest of birds. At least four (current) species which range in or near the Eastern Mediterranean have wingspans of 9 feet (3 meters). Coloration varies from black to red-brown, but a number of species have white down on their breast. Most vultures also have large distinct flat feet, made for walking. This may relate to the human-like feet of the vultures depicted at Catal Huyuk.

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Note 16 --

There is reputed to be another mural which depicts a (horned) person holding two vultures by the neck, one in each hand. I would have suggested that this might appear as an image of Saturn and its companion planets. The image, others have remarked, is reminiscent of much later Sumerian images (circa 2500 BC) of Gilgamesh holding two lions by their necks. (The image is also found in predynastic Egypt.)

However, the horned person image is suspect. It appears only in a much later text by Mellaart, et alii, *The Goddess from Anatolia* (1989). This book was published by a dealer in Anatolian rugs (kilims). The book was not entirely well-received. A scathing critique by Marla Mallett, a professional weaver, appeared in *Oriental Rug Review*, (August/September, 1990), as "A Weaver's View of the Catal Huyuk Controversy."

Mallett identifies the horned deity holding the vultures as a "modern kilim pattern of geometricized carnations [which] should be turned upside down." Mallett opens her critique with:

"It is logical to believe that vestiges of deeply rooted prehistoric cult mythology appear in modern Anatolian kilim imagery. Theories as unorthodox, however, as those presented in the new

Mellaart/Hirsch/Balpınar publication, The Goddess from Anatolia, 1989, must endure close scrutiny of all the arguments and evidence. Neither the work's hefty price tag nor its padding with archaeological references and lessons in ancient history ensures credibility. The elegant prose of supporters' reviews should certainly not secure automatic endorsements."

*"Fascinated by archaeological findings at Catal Huyuk in South Central Turkey, but skeptical because of problems encountered in earlier articles, I was eager to see the new book. It was a shock. I was stunned by stylistic inconsistencies between the Neolithic wall paintings shown in photographs or scale copies, and the new group of 44 "reconstruction" drawings by James Mellaart. Here were elaborately detailed, panoramic works said to be "reconstructed" from fragments, but with no verifying photos. Here were stylistically garbled sketches displaying irreconcilable design concepts. Here, placed alongside modern kilims, were purported copies of their Neolithic counter-parts -- but with warp and weft directions jumbled. From my weaver's perspective, questions of iconography, design diffusion, and historical continuity became incidental. Basic issues needed attention first. Were the drawings credible? Could slit-tapestry weaving actually have occurred in Neolithic Anatolia? Was there proof? Or indeed, **any** evidence of such production?"*



[Image: Birdman mural from Mellaart, et alii,
"The Goddess from Anatolia" (1989),
discussed by Marla Mallett.]

Specifically about the mural of the person (deity), above, holding two vultures, she writes:

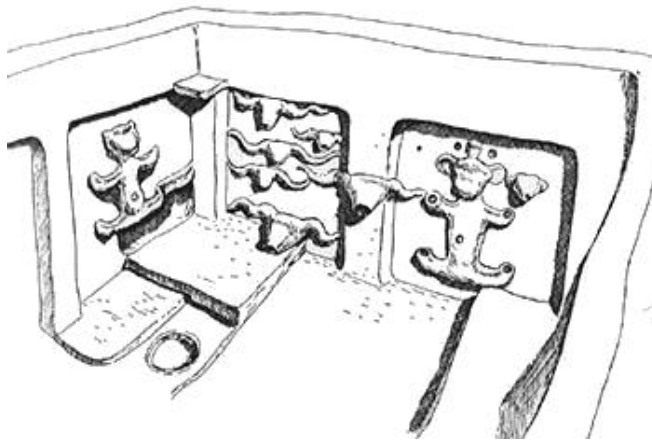
"A second conflict is apparent in Mellaart's 1967 comment, 'vultures occur only in levels VIII and VII.' A look at the Goddess 'reconstructions' shows, however, that in the 22 intervening years a plentiful supply of vultures has materialized -- nearly all in paintings supposedly from later shrines, levels VI through II. For example, one much touted motif, a 'deity holding two

vultures' (or 'bird carrier'), is from one of the panoramic paintings (Fig. 9) allegedly from Shrine A.III-11. This detail, from an already suspicious work, is the basis for Mr. Mellaart's argument that a common modern kilim pattern of geometricized carnations should be turned upside down and reinterpreted as 'deities with vultures.'"

Mallett notes that the weavers in Anatolia are Turks. Their oldest traditions are from Central Asia, not Anatolia. They arrived in Anatolia in the 13th century AD. See [\[http://www.marlamallett.com/ch.htm\]](http://www.marlamallett.com/ch.htm).

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Note 17 --



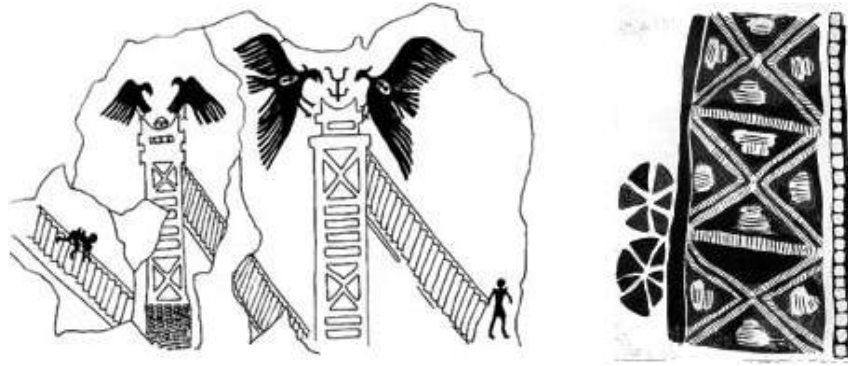
[Image: Teddy Bear wall sculptures, Catal Huyuk, Central Anatolia, 7400 to 6200 BC. After Mellaart.]

The "Teddy Bear" forms might represent the southern plasmoid. These might also represent plasma stream discontinuities of the "stick man" variety.

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Note 18 --

Two other instances of these vertical graphics are shown below. The left image was understood as an excarnation scene by Mellaart.



*[Image: Left: Catal Huyuk excarnation scene, after Mellaart, 1967.
Right: Catal Huyuk, vertical design, after Mellaart, 1967.]*

Ladders were in use at Catal Huyuk for access to the rooftop doorways to the housing.

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Note 19 --

The Celestial Bull will be identified and named in Mesopotamian legend (the Epic of Gilgamesh) and Egyptian iconography (the Palette of Narmer) as the Bull of Heaven.

Gimbutas has shown some Goddesses of the Neolithic with horns, which she equates with phases of the Moon. But these clearly date from the time when Saturn went nova, after 4077 BC, and long before the Moon showed up near Earth.

The only figure from the much earlier European Upper Paleolithic which is shown with a horn is the Gravettian "Venus of Laussel" (27,000 to 24,000 BC), in Southern France, a naked fat woman holding up an ibex horn in her right hand, carved on a rock face. The ibex was widely hunted in Europe.

In Greek and Roman times the bucrania are equated with altars and sacrifices. It had become a symbol of an acceptable sacrifice of a bull to a deity.

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Note 20 --

The image is somewhat suspect, in that the "style" does not reflect the blocky, graphic geometric designs used in other murals. It looks more like a cliff-face

rendition from the Western Sahara of about the same date or later.

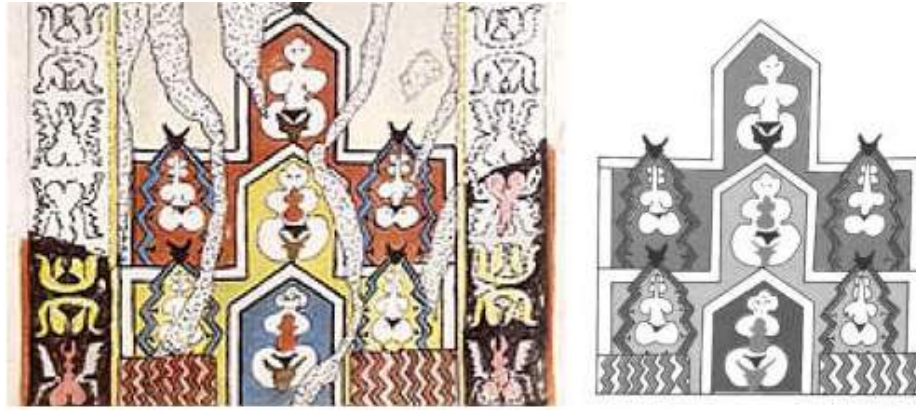
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Note 21 --

A seated figurine appeared on the last day of excavation by Mellaart. It shows a grossly fat woman seated with her arms resting on two panthers, and reminded other archaeologists of images of the much later Anatolian Goddess Cybele, who is also associated with wild animals, and depicted in the same manner. The figurine found by Mellaart was headless, but a reconstruction of an upright head with a face and a rolled cap has been added. This figurine has become a cultural icon with "Mother Goddess" worshipers. The authenticity of the reconstruction may not be correct, however. There were few, if any, figurines found at Catal Huyuk which had heads with which to compare. This is, at any rate, not a form of the typical Venus Figurine (especially for the particular period of Catal Huyuk). The Cybele figurine probably is exactly what it is suggested to be. The Goddess was current in Anatolia and Canaan at a later date, much after 2300 BC (my estimate), although reputed to be of Neolithic origin. The association with animals suggests that Cybele represents the ball plasmoid of the south, which would have been in view.

I wanted to use another image with the text of this chapter, a mural, shown below and reproduced in color in the book by Mellaart *The Goddess from Anatolia* (1989) and by Gimbutas as a line drawing ten years later in *The Living Goddess* (1999).

But I found the iconography curious, and out of style with what I would have expected. It would be the only instance of which I was aware where a crescent is associated with the pubic area of figurines. Although in outline the forms were congruent with figurines of a thousand years later, after 5600 BC, from Southeastern Europe as well as Anatolia (and elsewhere), at the time of Catal Huyuk, before 6200 BC, figurines worldwide were rendered more or less realistically, not as snowmen.



[Image: Catal Huyuk, Central Anatolia, 7400 to 6200 BC. The Fat Lady with crescent mural. On the left: a "reconstruction" by James Mellaart, from Mellaart, et alii, *"The Goddess from Anatolia"* (1989). On the right: a line drawing from Gimbutas, *"The Living Goddess"* (1999).]

I later discovered that Marla Mallett, in "An Updated View of the Catal Huyuk Controversy," in *Oriental Rug Review* (December 1992/January 1993), had also pointed out the suspect nature of this image, which supposedly is derived from room (shrine) AIII-11, although in the 1963 report by Mellaart this room was dismissed as containing only fragments of a hunting scene. To quote Mallett:

"Mellaart has now [1989] claimed that this building had 'some ten successive layers of painting, all differing from each other.' He has not explained this latest contradiction, nor has he told us why such extensive paintings were ignored in the 1963 report."

-- [<http://www.marlamallett.com/chupdate.htm>].

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Chapter 12: The Peratt Column.

\$Revision: 42.6 \$ (peratt.php)

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I will now answer the question of why people throughout the world would scale high cliffs to record the apparition in the south sky. People needed to find out where the sweepers and animals, which were seen traveling south along the lines of electrons, were going. The discontinuities in the electron streams looked like men with brooms or looked like animals. In fact, I will propose that most people on Earth came to the conclusion that life after death included a process of travel along these lines to the three mounds below the South Pole. It was a religious philosophy which held for 7000 years -- until Saturn in the north lighted up and a new destination was established.

The Peratt Column

In papers published in *The IEEE Transactions on Plasma Science*, in 2003 and 2007, Anthony Peratt demonstrated that about 40 percent of the millions of petroglyphs carved worldwide are representations of plasma column instabilities.

This column of plasma (consisting of individual streams of electrons in arc mode) stretched away from the South Pole, and at some distance from the pole took a turn away from the Earth's axis of rotation (apparently some 30 degrees). Three ball-shaped plasmoids in this stream were located at distances of 165,000, 190,000, and 435,000 miles (265,000, 300,000, and 700,000 km) below the South Pole. The bend in the column allowed the destinations to be glimpsed

even at far northern latitudes on a daily basis. Peratt has named the visible stream of plasma the "Peratt Column." [\[note 1\]](#)

Peratt writes, "The number of millennia or centuries involved remains unknown," and offers a broad estimate of 10,000 BC to 2,000 BC. In only one instance, for petroglyphs in the southwest of the USA, does he use a more specific date, "these objects stretched back some 7000 years in time." Thus we have one estimate here of about 5000 BC. He also notes that some petroglyphs were overdrawn or added to "two or three times." This would suggest periods of centuries.

The Peratt column developed as Earth moved from a lateral location with respect to Saturn to closer to its axis of rotation. Earth would have traveled into the lower coma of Saturn. I suspect that the edge of the coma was reached in 10,900 BC. That is the date of the impact in North America, offered by Richard Firestone *et alii* as detailed in a previous chapter.

The first display of the ball plasmoids lasted for 2500 years. Only at the close of this, or later, did humanity start the construction of huge mounds and lines of standing stones in an effort to coax the return of the plasmoids. There are mounds at Carnac which date from 5800 BC. There are very large mounds elsewhere in Western Europe which date earlier than this. But it is from Mesoamerica that we receive a recorded estimate. It is the Maya stelae which suggest an ending date for the "First Creation" in 8347 BC:

*"(And then) there was an event /
(on) 4-Ahau / 8-Cumku /
were completed / 13 Baktuns"*

*"13 Baktun, 0 Katun, 0 Tun, 0 Uinal, 0 Kin,
4-Ahau 8-Cumku, was (first) seen
the image of the turtle."*

To the Maya "13 Baktun" is equivalent to "zero Baktun," where "4-Ahau 8-Cumku" are the names of the day in the Tzolkin calender. A Baktun is a period of 400 years of 360 days, by the accounting of the Olmecs since 747 BC, but in remote antiquity the Baktuns probably just represented 400 solar years. On completing the 13th Baktun, the cycle of year counts was started over. The date of "13 Baktun, 0 Katun, 0 Tun, 0 Uinal, 0 Kin" (13.0.0.0.0 for short) has been determined by archaeologists to represent August 13, 3114 BC on the Gregorian calendar.

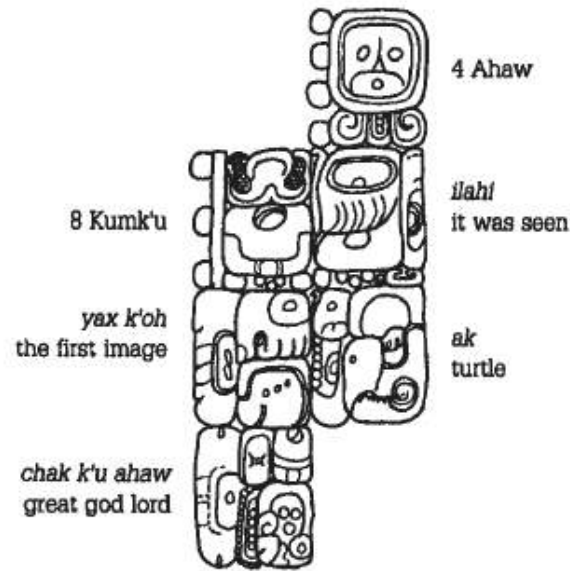
But it is not. And this is not when the turtle showed.

To the Maya, time was cyclical, and the 5200-year (13 Baktun) cycle of years which started in 3114 BC, is wholly equivalent to the previous cycle of 5200 years. But first, I should point out that the calculated date of 3114 BC is actually 3147 BC in solar years. Thus the previous cycle of 5200 years started in 8347 BC. If the stelae had not insistently mentioned either the first showing of "the turtle" ("great god lord") or the placement of "the three stones," there is reason to suggest a closing date of 8347 BC.

The reason the Baktuns recycle when the 13th Baktun is reached is because the Olmecs or their predecessors first started to count years (I suspect) long before 10,900 BC, and thus long before the ball plasmoids first showed -- as the turtle, or the three heart-stones. When the three appearances of the ball plasmoids ended, 2553 years had past, and the year count was at 13 Baktuns, in 8347 BC.

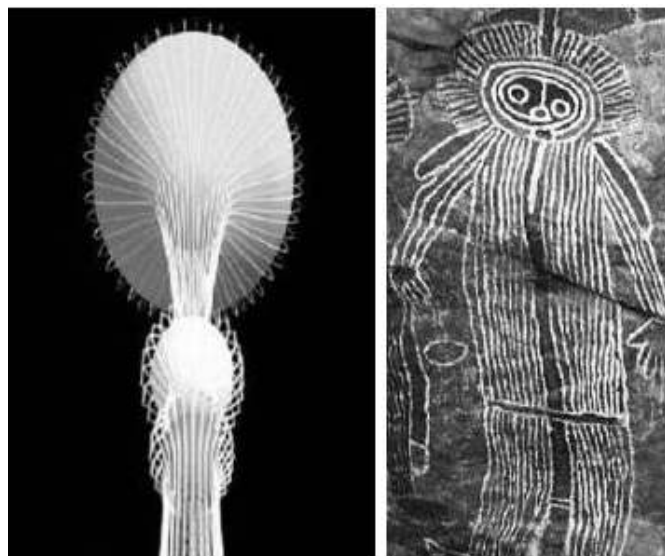
There are two inscriptions among the Maya standing stones which refer to this previous period, ending in 8347 BC, and list the Tzolkin and Haab day names of 4-Ahau 8-Zotz. (See S Morley, *An introduction to the Study of Maya Hieroglyphs* (1915))

When by coincidence the polar configuration came apart in 3147 BC, a 13th Baktun had again been reached, and a new count of years was established on the conviction that, although all other measures of time recycle on reaching a value of twenty, the Baktuns were destined to repeat when 13 was reached. (In the later Haab calendar the months recycle at 18.)



*[Image: The image of the turtle,
from a stela inscription; after Mayer.]*

It is obvious from Peratt's descriptions that both "the turtle" and the "three stones" represent the southern plasmoid which showed long before 3147 BC. In fact, he suggests dates as early as 10,000 BC. But from the Maya, and their predecessors, we learn that the first showing of the "turtle" ended in 8347 BC -- an event which the Maya called the close of the "First Creation." From Firestone's investigation it is obvious that the ball plasmoids would have first lit up the sky in the south in 10,900 BC. [\[note 2\]](#)



[Image: Left: Peratt Column below the South Pole, a reconstruction. Right: A petroglyph rendering in Australia, dated to circa 5000 BC (but likely to before 8347 BC). Not shown clearly in this reproduction of the ball plasmoids is what looks like a face in the center of the nearest (lower) ball plasmoid. Such details could not be seen in the northern hemisphere because of the intervening equatorial rings. After Peratt.]

Because of instabilities in the flow of plasma, the columns leading to the plasmoids at various times assumed different shapes -- most notably, the outline of a "squatting man." (It is uncertain if this involved single electron columns, or all of them grouped as one.)

This self-illuminated visual experience, never seen before on Earth, was recorded in millions of petroglyphs and pictographs (Peratt collected data on 4,000,000 petroglyphs). Many other forms taken by the lines of electrons were carved or painted in large scale on rock cliffs high above ground, and always with a view of the south or south polar regions, and often in a manner which blocked the direct view of the plasmoid, which would have been of startling brilliance -- like looking at arc welding.

An analysis of the locations, points of view, and visual elevations of millions of petroglyphs has allowed reconstruction of the shape of the entities seen beyond the South Pole. Peratt concludes that the columns of electrons were shaped (in its stable form) in the form of a tube surrounding the Earth, but not concentric with the south magnetic pole, which surprised Peratt, but concentric with the south geographic pole. Nothing of interest was seen at the Earth's North Pole at this time -- at least, so it was assumed by the researchers. There were additional shapes above the North Pole, shrouded in plasma, as we will see, which would later completely eclipse the images seen in the south.

The finding by Peratt, that this display was exclusively seen above the south polar region, has confounded Saturnian catastrophists, for it was never expected. All expectations were of a plasma display to only be seen in the north skies. From the perspective of my narrative, the display in the south came as no large surprise. It fits in well with the chronology I had already established from the forms of figurines over time in remote antiquity. The presence of Earth within the coma (plasmasphere) of Saturn, and located below Saturn, would explain the travel of massive amounts of electrons past the Earth in a northerly direction toward Saturn. Peratt, in fact, suggests that Earth was surrounded by a tube of electron beams which converged upon itself (pinching) below the South Pole of

Earth, and everywhere was in arc mode in separate bundles. Nothing is said (in the papers) of what happened to the bundles of electrons above the North Pole, although their passage past Earth is illustrated.

Some of the problems Peratt has with the form of this "aurora" -- it's centering on the geographic pole, the lack of evidence for a similar northern aurora -- clearly derives from an attempt to integrate this display with the concept that, if this were an actual aurora, then the inflow of particles from the Sun should have reached Earth laterally and divided up to cause auroras at both poles. But the Sun was out of the picture at this time, electrically invisible to Earth. The gradient of the electric field exterior to the Earth pointed in the up-down direction. It was the electric field of Saturn. The source of the flux of electron-dominated plasma was clearly from the south, headed for Saturn (properly, the flow of electricity is in the opposite direction). It was not destined for Earth but it was using Earth as part of a circuit, with the plasma headed for the boundaries of Saturn's coma. This was not an aurora. [\[note 3\]](#)

Peratt has earlier stated that there was no apparent coincidence with the south magnetic pole, and also noted that the beams of electrons passed by the Earth. Peratt published before Firestone (the 10,900 BC event), so he would not know of the incineration of North America, which poured massive amounts of micro-sized carbon particles and carbon gas into the stratosphere.

This entirely explains why the beams of electrons bypassed Earth. It would have been the upper atmospheric layer of carbon which prevented the plasmastream from Saturn from reaching Earth. Plasma depends only on one or two percent ionized anions or cations in a rarefied gas atmosphere. This will be a very low resistance. It was, in fact, thought, a century ago, that plasma streams had no internal resistance. But it was established in this century that there was a resistance.

Imagine a plasma stream meeting the stratosphere where conduction was limited by the high resistance of carbon micro particles, or a carbon gas. The current would drop to zero. And not just the stratosphere, 6 to 8 miles up at the equator, but with the possibility of single particles drifting into the thermosphere, which starts at 53 miles up, and extends hundreds of miles.

The plasma stream from Saturn would normally have headed for the north magnetic pole. But it could not be reached. This was what confounded Peratt, who completely expected the streams to impinge on the magnetic poles, south or north.

Earth was avoided because even a few inches into a region with carbon atoms, even if widely dispersed, would dissipate the flow of plasma. Earth was in effect insulated and isolated, although its electric field guided the electron beams.

The beams extended 165,000 to 435,000 more miles before developing the three plasmoids as a means of gathering electrons, possibly from outside the plasmasphere of Saturn, or else at the lower edge.

The reason the beams took a turn at some location below Earth would have been entirely due to the fact that Earth was not as yet directly below the south pole of Saturn. Away from Earth the electron beams followed the electric field of Saturn.

At some point it ended altogether, after all the layer of soot in the stratosphere had slowly depleted. At this time enough light from the Sun passed through to warm up the Earth after 1500 years. But enough probably remained to keep the electron streams out for another 1000 years. It would be expected that the depletion tapered off exponentially. And thus a considerable amount would remain, and although perhaps only a minute percentage. The remaining carbon probably amounted to only a smallest fraction of a percent by 8347 BC.

Electrons would travel north, while positive ions would travel south. This bi-directional streaming of particles, by convention, defines an electric current as headed south. [\[note 4\]](#)

The visibility of the column is caused by electrons in the flow spiraling about local magnetic field lines at speeds approaching the speed of light, called synchrotron motion. This constant change in the direction of travel causes the electrons to emit radiation in radio frequencies, x-rays, ultra violet, and visible light.

In that the flow of ions and electrons was 10 to 100 times as powerful as is today experienced with auroras, it is to be expected that the Earth's magnetic field would be aligned with its rotational axis. This would certainly be the case if, as I have suggested, the Earth's magnetic field is externally induced.

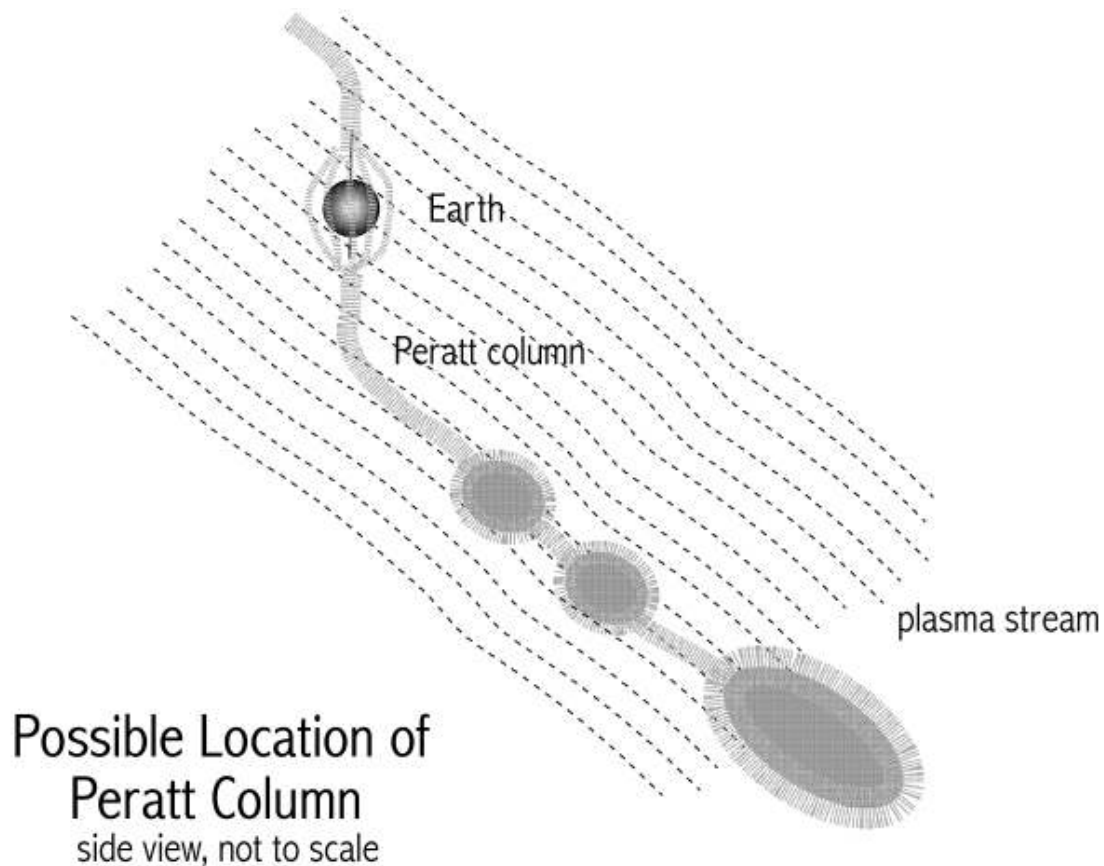
The column stretching away from the South Pole included a bend at some distance away from Earth, which allowed it to be seen also in the northern hemisphere of Earth, in fact, from as high as 70 degrees north latitude. My first guess was that the bend would be based on the angular difference between where

in the dome of the stars the rotational axis of Saturn pointed and where the rotational axis of Earth pointed.

Peratt suggested a bend in the stream of 10 to 15 degrees, based on his analysis of worldwide data. This does not make sense for viewing locations in the far north (70 degrees north latitude). So I am more inclined to suggest 30 degrees.

The most northerly petroglyphs are at 57, 61, and 70 degrees north latitude in Western Europe (Norway). These latitudes have horizons which dip 33, 29, and 20 degrees below the equatorial plane of the Earth, and would be adequate for viewing the Peratt column if the bend in the column similarly angled away from the Earth's rotational axis by about 30 degrees. This is considerably more than the "10 to 15 degrees" estimated by Peratt.

Peratt suggests that the bend in the column would be seen as existing east of the point of view of the petroglyphs in Australia, which means it was seen in the sky above (below) South America. The ball plasmoids would have rotated into the sky on a daily basis. The orientation of the three causeways at Carnac point to a location below South America also. Additionally, implied in a later text by Peratt and W. F. Yao, "Evidence for an intense solar outburst in prehistory," in *Physica Scripta* (2008), is that the plasmoid was seen directly south in northern South America and at the Nazca lines site in Peru.



[Image: Possible location of the Peratt Column downstream of Earth. Earth's axis shown up and down for convenience. Not to scale. Illustration by J. Cook.]

The bend in the columns of streaming electrons suggests that the Peratt column followed the magnetic field lines of Saturn to the edge of Saturn's lower coma, and changed direction near Earth to follow what would apparently be the magnetic field lines of Earth. Saturn and Earth have about the same magnetic field strength.

At this time the Earth's plasmasphere was shaped in response to the electric field of Saturn, so that an electrical shadow (tail) would extend far below the Earth's South Pole. Since the plasmasphere of the Earth was the result of Saturn's electric field, not its magnetic field, the angle of the Earth's southern plasmasphere tail would not coincide with the direction that electrons traveled along Saturn's magnetic field lines. That is why there is a change in direction of the Peratt column.

The Peratt column would thus approach the Earth's rotational axis at an inclination different from the Earth's axis, but would realign to the tubular edges of the Earth's plasmasphere, in effect realigning to the rotational axis of the Earth. The electrons were not destined for Earth and Peratt claims that they passed by Earth toward the north and south. No destination in the north is ever suggested by Peratt.

But the construction of the Carnac causeways contradicts the notion that the beams simply organized themselves into dispersed electrons in the north. One of the Carnac causeways, all of which point to the southwest, clearly places another circular shape in the north (north east). The other southwest-pointing constructions are not clear on this (and mostly destroyed). Book 11 of the Maya *Chilam Balam* suggests also that there were objects in the north, as does the *Popol Vuh*. More on these sources below. The object in the north, still shrouded by swirling plasma, will turn out to be Saturn.

... the Opossum

There should be tales and myths relating to the Peratt Column, even though these would date from memories of events starting 13,000 years before today. I was initially aware of only a few. But once I understood enough to identify the imagery, many other references started to turn up. Of course, any tales of a man or creature at the South Pole would tend to get lost in the plethora of myth which was to be generated by the northern polar column after 4077 BC. The Peratt Column never did anything significant, except to create giants in the sky and other forms.

One example initially stood out. It is from the Quiche Maya *Popol Vuh* document, written in the 16th century AD in Guatemala. The *Popol Vuh* is a recounting, in European script, of the tales of creation of the world and the genesis of the Quiche tribes. The authors make reference to old glyphic books still in their possession, and recount (and mix) events thousands of years old. See the chapter "The Popol Vuh," for a more extensive analysis, plus suggestions that the original records may have dated back to 41,000 bp.

Hunahpu and Xbalanque, the twin hero characters of the *Popol Vuh*, are in Bat House in the Underworld, sleeping inside the barrels of their blowguns as protection against snatch-bats. Xbalanque inquires of Hunahpu how long it will be before dawn arrives. As Hunahpu peeks out of his blowgun, a snatch-bat removes his head. Hunahpu's head is later restored with a squash.

But that is the narrative. What is of interest is that Xbalanque next requests the delay of dawn from old man opossum, so they will have enough time to fashion a squash head:

And this is when it was trying to dawn, reddening along the horizon.

"Now make the streaks, man," the possum was told.

"Yes," said the old man. When he made the streaks he made it dark again; the old man made four streaks.

"Possum is making streaks," people say today, ever since he made the early dawn red and blue, establishing its very being.

The *Popol Vuh* is full of such explanations. The opossum would not have meant anything to me if I had not recalled that "opossum" is a North American Indian word, meaning "white beast," and if I had not seen Peratt's reconstruction of the column at the South Pole. There are 66 species of opossum in the Americas; none are white, although one species has a white face. The common North American species is gray. Opossums are American marsupials with a squat body and a very long hairless prehensile tail. As marsupials, they carry their young on their backs.

From a latitude above the equator, the White Beast would not have looked like a person with a mouth and eyes, as the Australians depicted the column (and as it was also depicted in Venezuela, Brazil, and Peru). In Southern Mexico, seen through the screen of the Absu, the Peratt Column must have looked like a white opossum, its back turned to the viewers, its long tail stretched behind it. It may even have seemed to be carrying its young on its back -- the two intermediate plasmoids. [\[note 5\]](#)

None of the opossum species is striped. So where do the stripes come from? Dennis Tedlock, translator of the *Popol Vuh* (1996), suggests it signifies the four solar-year names of the Maya calendar, which all start on one of only four day-names. He also suggests that the stripes represent striated clouds seen at dawn in the east. Both are likely to be true, but irrelevant here.

In the *Dresden Codex*, an illustration shows an opossum bringing in the new year, carried on his back like a trader's cargo.

The plasma column's discontinuities, mentioned earlier, are likely the result of Saturn's movement on an elliptical orbit which would bring it closer to the Sun and further away over the course of a year. The plasma stream would change with the changing potential of the Sun's electric field at the different locations. Actually, it is the plasma flow and the size of Saturn's plasmasphere which would change over the year. There might be a consequent response in the shape and size of the south polar plasma stream -- also the very reason for the discontinuities. Thus the look of a full-fledged white beast might occur annually, perhaps as Saturn and Earth approached perihelion with the Sun. This might have been the first indication of a renewal of the year after 10,900 BC.

Certainly a cycle of seasonal changes would have been noticed anyway, since the Sun itself was probably dimly seen from Earth despite the enclosing coma of Saturn. Some sense of a progression of seasons must have been in effect, even without the delivery of the New Year by an opossum, since the Earth's axis was tilted (as today) to the Sun. But an annual appearance of the opossum may, in fact, be the genesis of the solidly embedded concept among the people of Mesoamerica, that time is delivered as if it were cargo carried on the back of a trader.

Peratt suggests that the streams of plasma in distinct bundles of light-emitting electrons would have continued past the Earth, on all sides, traveling from below the South Pole to the north -- and beyond. These would have been seen as brilliant white streaks against the black sky, passing overhead, but, may have been intermittent over the course of the year.

Peratt writes:

"Two egg-shaped plasmoids are found at 306,000 and 266,000 km, respectively. The farthest limit of the reconstruction (the top) is located 701,000 km [435,000 miles] from Earth. The number of Birkeland currents is 56 at the top, converging to 28 at the plasmoids and eventually converging and twisting into four large filaments. If the current oscillates or is sporadic, the four can separate back to 56 filaments. Whether 56 or 4, or some number in-between, the filaments flow over and past the rotating Earth."

-- Peratt, et alii, (2007) [\[note 6\]](#)

Specifically, the opossum makes four streaks. The *Popol Vuh* says so. If 28 bundles of the plasma were passing by Earth, then each area between the

electron bundles would occupy 13 degrees, so that the region included within 4 stripes (and somewhat beyond) would be perhaps 40 degrees of the sky -- quite a broad view. This is some 2800 miles (4500 km) of the circumference of the Earth, or of a region further away from the surface of the Earth. It is uncertain if a view much beyond a width of 2800 miles would be possible, since the perspective toward the east and west horizon would condense additional streaks and the atmosphere would obscure any additional stripes.

Tedlock, and his Quiche informant Andres Xiloj, discuss the four cloud streaks at dawn in terms of red and charcoal black, but the *Popol Vuh* specifically calls the streaks of Possum as being red and blue. "Blue" is an ill-defined word in English, since, although blue is a very dark blue-purple color, in reference to a clear sky, the color cyan is meant. The Maya, during the Classical Era, developed the chemistry of a Prussian blue colorant, for which they gained some fame. Red, on the other hand, is easily produced from iron oxide or from Cochineal insects, found in subtropical America. Thus the authors of the *Popol Vuh* may have reached the conclusion that the streaks were "red and blue" on the basis of the inspection of ancient painted codexes, which in turn had been recopied and re-illustrated for thousands of years. Peratt, however, also references the sight of intense auroras, seen in historical times, as composed of white bands on a red field. Lines of electrons in arc mode would best be described as a brilliant cyan blue. [\[note 7\]](#)

In Australia, as in Peru and Ecuador, all below the equator, the details of what looked like a face could be seen. For regions north of the equator such detail was obscured by the Earth's equatorial rings. The image was reduced to an animal shape. In Portugal and France the ball plasmoid was understood as a giant mound, and commemorated as a burial mound.

... the Nazca lines

Peratt notes that the "Nazca Lines," lines of paths of cleared pebbles running in straight lines for miles in the high plains of Peru (made by removing pebbles to reveal the lighter colored ground), can also be recognized as images of the same north-south lines seen in the sky. Surface lines like these occur at a number of other locations in the Americas. By means of an illustration, Peratt shows that only a few lines would have been seen overhead in Peru. Thus the four streaks made by the opossum probably represent the correct number seen in the sky. [\[note 8\]](#)

The Peratt column may have lasted hundreds of years or more. It completely fascinated and confounded humans, who for these reasons needed to draw representations in areas where the far south plasmoid was visible -- mostly high up on mountain cliffs with a southern view, but also on seashore cliffs. But nothing came of the Peratt Column. Petroglyphs continued to be carved and images based on what was seen may have recurred for thousands of years, but the south column did nothing more during all of its existence than brilliantly light up the skies and change shapes. Only a curious saying, based on the events of the remote past, remained current among the Maya, "Possum is making streaks."

As I mentioned above, Peratt has noted that some petroglyphs were overdrawn or added to "two or three times." The most likely reason for going to the extremes of climbing vertical cliff walls to recarve the images would be the disappearance of the Peratt column. After decades or centuries of announcing the New Year, if the column suddenly failed to appear, humans would have panicked, and climbed mountains to force the return of the Peratt column. (Peratt's paper mentions "three epochs where, in a flurry of activity, petroglyphs were recorded worldwide.") Book 11 of the Maya *Chilam Balam* claims that God expressed himself with the plasmoids and the column three times. (See the chapter "The Olmec Record.") There are three main stretches of causeways at Carnac pointing toward the southwest. The site of Lepenski Vir also went through three major remodelings over the course of its use, although this may be coincidence. (The Lepenski Vir graveyard is discussed below.)

I should point out that the giant burial mound at Carnac, and the similar mound in Portugal, probably represent the large plasmoid in the south, which were certainly used for burials at a later date, even though we have no clear ideas of their original use.

... creation tasks of the *Popol Vuh*

The *Popol Vuh* also gives an account of the first tasks to be accomplished at the very beginning of time and before any activities resulting in the creation:

*"the fourfold siding, fourfold cornering,
measuring, fourfold staking,
halving the cord, stretching the cord
in the sky, on the earth,
the four sides, the four corners, as it is said,*

*by the Maker, Modeler,
mother-father of life, of humankind."*

-- Tedlock, *Popol Vuh*

Here again we have "fourfold" operations, although this could refer to the survey of a rectangle. "Maker" and "Modeler" here are two of the five northern Gods responsible for creation, collectively known as "Heart of Sea, Heart of Lake." Tedlock notes, through his informant Andres Xiloj, that what is being described here is the measurement of the sky as if it were a cornfield or a house. It is also reminiscent of one of the sacred duties of even the earliest Egyptian pharaohs, the "stretching of the cord."

... a survey of the world from the *Chilam Balam*

Although very little detail has been released of the visual effects of the Peratt Column, we could make some guesses. I would propose, therefore, that the brilliant lines of electrons which passed over the Earth were stationary, that is, they followed the Earth's magnetic field lines, and thus the lines rotated as the Earth rotated; in effect they would be seen as stationary above any location on Earth. This presumes that the Earth's magnetic field was considerably different from what we experience today. It would have been elongated in the north and south axial direction.

If the stripes overhead were stationary, that would perhaps account for the fact that at Nazca people could spend the considerable time needed to clear the miles-long paths as representations of the lines. It would also answer to another recollected memory, among the Maya, of a survey of the land.

In the 16th-century Maya *Books of the Chilam Balam* there is a curious reference to a large surveying task, undertaken long ago, before the present "creation." This occurs in Book 11, titled by the translator Antonio Mediz Bolio "The Book of the Lineages" and by Ralph L. Roys as "The Ritual of the Four World-Quarters." (Both translated *The Book of Chilam Balam of Chumayel*, Bolio into Spanish in 1930, Roys into English in 1933.)

Roys starts the translation with a note that apparently the previous page is missing. So he starts in mid-sentence, as follows:

"... the first man [idol] of the Canul family. The white 'guaje', the 'ixculun' (and) the gumbo-limbo [three tree species] are his little hut, ... The logwood

tree is the hut [lean-to, temporary shelter] of Yaxum, the first of the men of the Cauich family."

"The lord of the people of the south is the first of the men of the Noh ["South"] family. Ix-Kan-tacay is the name of the first of the men of the Puch family. They guard nine rivers; they guard nine mountains."

NOTE: insertions [] from Roys's footnotes.

"Nine mountains," Roys suggests, is from "Bolonppel-uitz," which is, he writes, "probably a place-name in the south."

What is being described here? Let me propose that the three trees are the three visible ball plasmoids which are elsewhere identified as the "great white opossum" seen in the far south. The logwood shelter is composed of the overlaid nearby lines closer at hand, near the South Pole, from where the streams of electrons diverged to ride over the Earth. Peratt offers a convincing graphic of this, from the perspective of Peru, which indeed does look like a lean-to. The nine rivers, I would propose, are the nine rings of the Absu which were seen from the Yucatan, or anywhere close to the equator. The nine mountains I cannot place.

Bolio's translation, here rendered in English by Suzanne D. Fisher, is easier to read, but takes some liberties with the original text, as noted by others. (See the chapters "The Chilam Balam" and "The Day of Kan.") Bolio writes:

"The Lord of the South is the root of the lineage of the great Uc. Xkantacay is his name. And it is the stock of the lineage of Ah Puch."

"Nine rivers guarded them. Nine mountains guarded them."

There are no titles in the original, no punctuation, and no indication of where sentences start or end. Roys sees the present page as standing alone, and starts the translation of the following page as Book 2, under the title of "The Rise of Hunac Ceel to Power." Book 2 is a long piece, mostly coherent except for two interruptions which describe migrations of the Itza into the Yucatan in the 9th or 10th century AD (which may have been the Toltecs, but were remembered as the later Itza). Hunac Ceel is a 12th-century AD Itza ruler. Bolio, on the other hand, takes the present page to be part of the Itza history, but separates out the last page of the history of the Itza as dealing with a different topic (correctly so, I think).

I am making note of the context here because the page of the *Chilam Balam* under consideration stands out in three distinct ways from the "history of the Itza." First of all, if this description is part of the history of the Itza, it starts out far too early -- actually some 6000 years before the Itza arrive in Maya territory, but clearly also from the subject matter: the intimations of early beginnings, a survey of the land before settlement, the list of mythological names and places (which are all puns and facetious attributions).

Second, the origin of a people is here placed in the south, in fact, beyond the nine rivers. The Itza, however, came from the north and west, from the Valley of Mexico (as did the Toltecs).

Third, as I will quote further below, the first major task was a survey of the land, but this would be a land of mountains -- the Guatemalan Peten region. The flatland of the Northern Yucatan was not occupied by humans until quite late, although certainly by Toltec and Itza times.

I will skip here a list of the directional colors and properties of the cardinal points -- east, north, west, and south, always in this order, and always assigned the colors red, white, black, and yellow in order, and jump to the survey of the land. The mention of the directional colors, and certain other details confirm to place the descriptions in remote antiquity. I have expanded on this in the chapter "The Olmec Record."

Next comes the surveyor, who probably needs to be directly associated with the great white opossum. Roys writes:

"11 Ahau was the Katun when they carried (burdens) on their backs. Then the land-surveyor first came; this was Ah Ppizte [Measuring Man] who measured the leagues. Then there came the 'chacté' shrub for marking the leagues with their walking sticks."

"Then he came (to) Uac-hab-nal to pull the weeds along the leagues, when Mizcit Ahau came to sweep clean the leagues, when the land-surveyor came. These were long leagues that he measured."

Bolio has, not altogether different:

"With the 'Eleven Ahau Katun' appears the retinue of their servants."

"And Ah Ppisté [Measuring Man] began to come. This Ah Ppisté [Measuring Man] was the measure of the earth. And then came Chacté Abán, to prepare the measurings of land to be cultivated."

"And Uac Habnal came to mark the measurings with signs of the herb; while Miscit Ahau came to clean the marked out lands and Ah Ppipsul, the measurer, came, who measured wide areas."

The names upon names should not worry the reader. Mesoamerican languages, like most American Indian languages are primarily action oriented, not time based. If an action happens, it has to be attributed to an agent. Additionally, as Roys points out, frequently the names are just puns.

Katun 11-Ahau is the name of a double-decade period which is understood by the Maya as starting all history. All of history is always repeated every 13 Katuns, a cycle of about 250 years, where Katun 11-Ahau is always the first 20-year period in the list of 13. All events at the beginning of time, or in remote antiquity, or before there were calendars, are always placed in Katun 11-Ahau.

"These were long leagues that he measured" and "who measured wide areas" both show that the survey was no small project. I would suggest that we are looking at a recollection of the white stripes in the sky. To the later scribes of the Olmecs, and other peoples who came before the Maya, the recorded events suggested that the survey was done for humans, and possibly by humans, and was a necessary task before settlement of a land after a migration from the south. (The *Popol Vuh* will suggest a migration from the east.) To use this information as the opening page of the *Chilam Balam* would make sense, as would its use at the beginning of the history of the later Itza migration. It localized the information from remote antiquity to the time and conditions of AD 1000 in the Yucatan. [\[note 9\]](#)

What is particularly important in the above is the "sweeping" of the lines and the "pulling of the weeds." This strange activity is duplicated in Neolithic England, as I will describe below.

... Ley Lines

There seems to have been a propensity in the Neolithic to forming long absolutely straight pathways, often over difficult terrain, going over steep hills when it would have been much easier to go around. Located along these lines are

important landmarks -- megalithic monuments, churches, and graveyards. The lines became very obvious in England, where they were first reported, and have since been discovered in other parts of the world -- North and South America, Australia, Western Europe, and China (where prohibitions against straight-line paths are invoked under the Feng-shui philosophy). They are called "ley lines" today, and known as "doodwegen" in Dutch -- roads of the dead.

The first awareness, and first book on these (for England) was penned by Alfred Watkins in 1922, *Early British Trackways, Moats, Mounds, Camps and Sites* and is still clearly more meaningful than the present day submersion of this topic in New Age speculation. Of course, by the late Neolithic there no longer was any coherent reflection of the original north-south paths seen in the sky, and pathways were plotted in all directions. This is true of the Nazca lines also.

It might be suggested that the "sweepers" who cleared the lines in the sky in the text quoted from the *Chilam Balam*, above, were smaller nodules, small plasmoids, or electric discharge patterns, seen traveling along the lines toward the south. Alfred Watkins in his book writes about town names along Ley Lines:

"'Broom' occurs with great persistence on leys, with its variations brom and bram. Bromley and Bramley, Bromton and Bramton, Bromfield (where is the Old Field with a number of tumuli), Broomsgreen, Broomsberrow, and the many Broomy Hills are examples. It is not confined to one form of sighting point, and I surmise (from a faint line of evidence) that a component part of our modern broom was an essential working implement of the skilled ley man, and was continued as the staff of the medieval pilgrim. Whether the plant broom was the original root word or a derivative I cannot say."

The word "broom" is a cognate of "bramble," a thorn bush. This suggests that a series of electric discharges (arcing) traveled south along the lines, looking like a moving dendrite pattern, directed toward Earth's mesosphere or stratosphere, 40 to 100 miles above the surface (65 to 160 km), and in constant motion toward the south. If the tendrils of the "brambles" were directed down from the streaks of electrons, this would indeed have looked like brooms were sweeping the lines, or, as the *Chilam Balam* has, that weeds were being removed. As a household implement, the broom probably dates from the Upper Paleolithic. [\[note 10\]](#)

... Catal Huyuk murals

As I pointed out in the previous chapter, some murals at Catal Huyuk which look like "designs" are actually depictions of "pinch instability characteristics" which Peratt has illustrated as laboratory plasma instabilities and as petroglyphs. Of note for the Catal Huyuk murals is the fact that curious appendages are added to the three beams of electrons (what would be the pinch instabilities). The three beams are shown as twisted cords.



[Image: Vertical designs against a background of bricks at Catal Huyuk. The designs can be identified as "pinch instability characteristics" depicted as petroglyphs by Peratt. Illustration after Mellaart.]

At this time we have already discussed the Ley Lines, the Nazca Lines, and a number of other instances dealing with the lines of brilliant electrons in the skies. I have also suggested that the brooms of the "sweepers," which have shown up on two continents, are likely the heteromac appendages shown in the murals at Catal Huyuk.

Catal Huyuk dates from 7400 to 6200 BC, much later than the period during which the Peratt Column appeared, 10,900 BC to 4077 BC. The Catal Huyuk appendages do not look much like brooms, but, as Peratt has demonstrated in his 2003 paper, a number of heteromacs which have been identified among the petroglyphs are rendered as figures with smaller figures attached. If these moved along the lines, they might indeed have looked like sweepers.

... God speaks to Job

The *Book of Job* is reputed to be one of the oldest books of the Bible. God, in a dialog with Job, speaks of the "chambers of the south," which is the Egyptian phrasing for the Duat ("mansions of the south"). He speaks also about the creation of the Earth, and asks Job, "Where were you when I founded the earth? Tell me, if you have understanding, who determined its size; do you know? Who stretched out the measuring line for it?"

Then the Lord addressed Job out of the storm and said: "Who is this that obscures divine plans with words of ignorance? Gird up your loins now, like a man; I will question you, and tell me the answers! Where were you when I founded the earth? Tell me, if you have understanding, who determined its size; do you know? Who stretched out the measuring line for it? Into what were its pedestals sunk, and who laid the cornerstone, while the morning stars sang in chorus and all the sons of God shouted for joy?"

-- Job 38:1-8

The "pedestals" likely are the four pillars at the cardinal points which hold up the canopy of the sky. These, which I suspect are two magnetic polar plasma plumes and two similar forms in the east and west, I will elucidate in a later chapter.

... the stones at Carnac

In Brittany in France at Carnac is a series of causeways with 10 to 13 parallel lines of standing stones, dated from before 4000 BC. (The giant grave mounds date from 5800 BC.) There are three distinct causeways running from northeast to southwest (Le Menec, Kermario, Kerlescan), in line with each other, plus a number of others (Crucono, Saint Barbe) at right angles to these. At one end, the southwest, or at both ends (Le Menec) of the causeways there are remnants of large circles of standing stones.



[Image: Carnac standing stones. After Wikipedia, public domain.]

The existence of circular structures at both ends of the causeways would suggest that an additional circular object existed above the Earth's North Pole, which has not been identified by Peratt. I would suggest that this was Saturn as the endpoint for the streams of electrons. Saturn thus might have been visible at this time, as the *Popol Vuh* also claims (discussed below), although likely enshrouded in glow mode plasma.

In all there are some 4000 stones still standing in rows. Originally there were perhaps 10,000. The causeways near Carnac point toward the southwest, suggesting a contact point for a plasma stream in the mid-Atlantic (and thus to South America). The few shorter alignments, running almost at right angles to these, point to the northwest instead -- as at Kerzerho, which likely represent the new stream of plasma seen in the northwest after 4077 BC. Kerzerho uses the largest stones.

The main Carnac causeways seem to be representations of the Peratt Column seen extending from the South Pole. The standing stones start at four rows in the northeast portion (which likely represent the view directly overhead), increasing to 11 or 13 rows in the southwest -- the southern view beyond the Earth (one fourth of a bundle of 56 streams of electrons would be represented by 14 rows).

The rows of standing stones narrow at the southwest end, as if to suggest a diminishing perspective, despite the crowding from additional rows of stones. The stones also increase in height toward the southwest, suggesting a point of view elevated into the sky. The southwest end of the causeways also tends to run uphill slightly, in effect also pointing to something in the sky. Many causeways have a bend at the center, that is, they change direction slightly. The change in the direction of the electron streams of the Peratt Column happened somewhere within 435,000 miles (700,000 km) below the South Pole. The causeways point to the South Pole below or slightly west of South America.

"In South Australia, a bend in the plasma column far above the Earth was noted. Nearly normal to Antarctica, the column bends eastwards as seen from Australia and presents an increasingly "stretched" columnar profile for New Zealand and more so for South Africa."-- Peratt, et alii, (2007). [\[note 11\]](#)

The observations in Australia place the main body of the White Beast toward the east, and thus below South America. The direction of the electron streams seen in France, that is, the direction of the causeways, also points to South America. The far plasmoid of the Peratt Column was stationary with respect to the location of the planet Saturn. Only as the Earth rotated would the far end of the column alternately come into view and disappear again, nightly.

Over the course of a solar year, with both Saturn and Earth on equal but displaced orbits around the Sun (and the Earth below the equatorial of the Sun as well as below Saturn), the Peratt Column might have entirely disappeared from view in the daylight sky. Or the Peratt Column could have ceased to exist annually as the conditions of Saturn with respect to the electric field of the Sun changed on its elliptical orbit. This would not be reason enough for the constantly renewed recording of the phenomena in petroglyphs, causeways, and standing stones. I would think that only the complete disappearance of the Peratt Column for decades or hundreds of years at a time would be cause for new carvings, paintings, and constructions.

... Vishnu Takes Three Steps

There are suggestions based on linguistic analysis for the creation of the *Rig Veda* in Northeast India (Pakistan) in 1700 BC -- in the foothills of the Himalayas. Importantly, this location is also recognized for the earliest plant domestication in Asia, perhaps as early as 9000 BC. In fact, there seems to be no

sign of a hunter-gatherer phase in low-land India prior to about 7000 BC when plant domestication appears in Central Pakistan, as at Mergharh in Baluchistan. The Harappan civilization of Pakistan dates to after 3000 BC. (Clyde Winters claims the Harappan civilization to be derived from southern Sahara or central Africa.) Although folklorists only begrudgingly attribute the creating of the Indian *Rig Veda* to 1200 BC, the *Rig Veda* clearly describes events dating back to before 10,900 BC.

Graham Hancock, in *Underworld* (2002), describes the following:

"In the Rig Veda, Vishnu's principal exploit, recounting and celebrated again and again, is the taking of 'three steps'. Although it is agreed that these steps must symbolize something of profound importance, scholars have as yet reached no consensus as to their underlying meaning."

Hancock then quotes from the *Rig Veda* as follows:

"I will declare the mighty deeds of Vishnu, of him who measured out the earthly regions ..."

"He who for man's behoof in his [man's] affliction trice measured the earthly regions."

Hancock continues with quoting various measures from the *Rig Veda*, attempting to segue this with the erroneous notion expressed by Giorgio de Santillana and H. von Dechend in *Hamlet's Mill* (1969) that the precession of the equinox was known since remote antiquity. (There was no precession before 747 BC.) What he fails to note is that what is being expressed is exactly what happened: the Earth was being surveyed with cords strung through the skies -- three times -- once for each passage through the conducting edges (the double layers) of the parts of the circular outer plasma plume and the central plasma plume below Saturn. [\[note 12\]](#)

Peratt has suggested that some petroglyphs were overdrawn or added to "two or three times." The three groups of standing stone causeways at Carnac definitely suggest "three times," as does the *Chilam Balam* and this quoted passage from the *Rig Veda*.

... the Heart of Sky

The *Popol Vuh* lists two sets of creation Gods under collective names, separating the Gods of the south from the Gods of the north, and calling the southern apparitions the "Heart of Earth, Heart of Sky" while calling the northern apparition the "Heart of Sea, Heart of Lake." North and south are not identified, but it becomes obvious that the streams of electrons arriving at the plasmoids in the south connected to another entity in the north. The entity in the north is identified as Saturn and its companion planets mainly through the mention of one of the gods who is clearly identified as Quetzalcoatl or Venus from the name "Sovereign Plumed Serpent." [\[note 13\]](#)

As seen from Central America or Northern South America, Sovereign Plumed Serpent and his companions are seen at the north horizon rotating out of the sea ("Heart of Sea") on a daily basis and rotating into the sky supported on the rings of Saturn ("Heart of Lake").

"Heart of Earth, Heart of Sky" in the south is identified as three members, Thunderbolt Hurricane, Newborn Thunderbolt, and Sudden Thunderbolt. These clearly are the three plasmoids of the Peratt column seen at the south horizon which rotated out of the land ("Heart of Earth") on a daily basis and rotated into the sky ("Heart of Sky"). The "Thunderbolt" names are appropriate for plasma displays, which will switch from dark mode to glow mode (or arc mode) suddenly. "Thunderbolt" is also appropriate, considering the arc mode bundles of electrons from the ball plasmoids, which, if they were sporadic, could be seen approaching and flashing across the sky like a traveling lightning bolt.

[The following few paragraphs are quoted from a later chapter.]

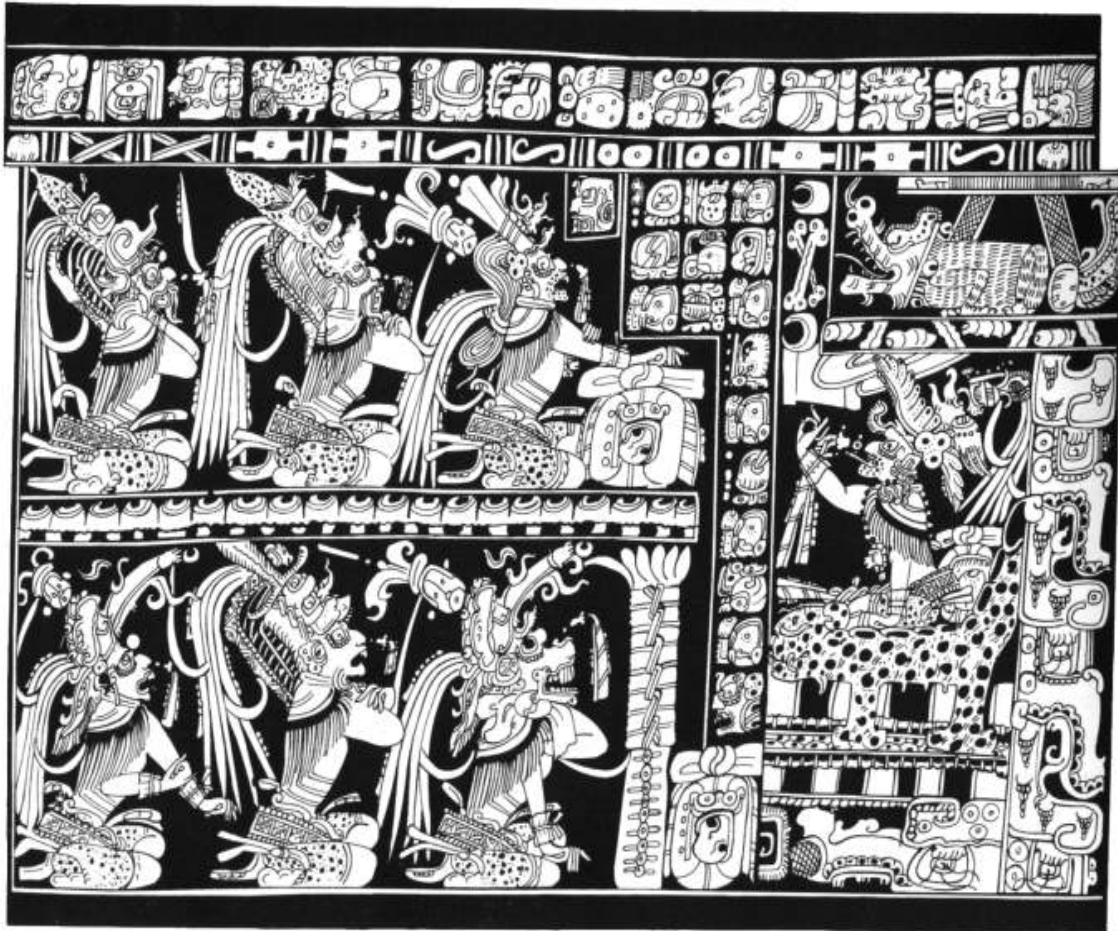
In *Maya Cosmos* Freidel and Schele present the imagery of a painted pot showing six Gods in council with a seventh older God. They are advising the seventh god to "bring into existence" and "put in order" the place called "black is its center" -- a fit description of the deep shadow at the center of the Absu which changed size and shape over the year.

[This is currently understood as the dark gap in the Milky Way by archaeologists.]

More quoted text:

This scene illustrates what the *Popol Vuh* recounts at great length, the negotiation of the southern and northern gods leading eventually to the

creation of Earth and man. The negotiations in fact actually lasted about 2500 years, from 10,900 BC to 8347 BC.



[Image: A pottery Image: "Six gods and Jupiter. The text reads of an attempt to council Jupiter into the act of creation." After David Freidel and Linda Schele "Maya Cosmos" (1993).]

Additional quoted text:

The presiding elder God (God L) is easily identified as Jupiter as well as First Father. The six Gods have various names, of which some are easily identified. God "Three Born Together" is obviously the three plasmoids of the south and God "Nine Footsteps" is Mars. Others have identified the center figure of the bottom row as G-I which is Venus. Subtracting God "Three Born Together" of the south leaves five Gods all associated with the polar configuration of the north. This is the same number as listed in the *Popol Vuh* (see the chapter "The Popol Vuh" for details). These are Uranus,

Neptune, Saturn, Mercury (but identified as Venus), and Mars, all of which were easily distinguished in the earliest time before 10,900 BC, although some disappeared behind (or above) each other by about 5800 BC, and Venus probably did not exist as early as this council meeting is meant to depict. God L (Jupiter) is distinguished from the polar configuration planets, and we are given a rare insight: the suggestion that at the time of the council, even long before 4077 BC, Jupiter had been known and seen for eons, and therefore was properly represented as very old.

This illustrated pot again points up the Mesoamerican concept of the simultaneity of time. The council of the six Gods happens after the First Creation of 10,900 BC (discussed below) as far as the narrative of the *Popol Vuh* is concerned, resulting eventually in the creation of the Sun and eventually the lighting up of Saturn. But the disposition of the dark spot in the Absu, in fact, the whole of the Absu, is not tackled until the after the end of the "third creation" of 2349 BC (discussed in a later chapter). The six Gods had long since disappeared from view by that time.

[end quoted text]

The *Popol Vuh* recounts the three appearances of the Peratt Column as three attempts by the Gods at creation, the first two of which (mud people and wooden people) were failures. The third attempt, when people are made from maize-dough (or maize-mash), has to be dated to after 4077 BC (when the maize-dough mountain first showed up in the north).

... Egypt

The apparition at the South Pole can be equated with the God Geb of the Egyptians, who impregnates the Goddess Shu of the north via the bundles of electrons seen reaching the north skies beyond Earth. This would account also for the enormously long penis of Geb.

Alternately, the God in the south is Nebertcher ("Lord of the outermost limits"), residing in Nu, the waters of heaven (the Duat), who initiated creation at the very beginning of time (the primal time) by calling into existence Khepera, represented by a dung beetle. This particular interpretation is from a Ptolemaic era papyrus. But Khepera is first seen in the *Ogdoad*, a theology of 8 gods, dating from the Old Kingdom Dynasty 3 through 6 (circa 2650 BC to circa 2200 BC). The Ogdoad gods consist of four pairs of males and snake females, who

first create light. Except that there are four groups, the remainder matches the three ball plasmoids of the south and their snake-like appendages. The pairs represented water, invisibility, infinity, and darkness -- suspected (by me) as much later metaphorical theology.

The larger southern ball plasmoid would certainly look like a beetle with its hairy legs, complete with a dungball in front of it. It is also amazing that this imagery was remembered for 8000 years. Today mythologists assign to Khepera the task of rolling out the Sun on a daily basis. Representations of Khepera, as a matter of fact, show him (her) holding up or pushing the solid red ball of Ra -- which is actually Jupiter, but which represented Saturn earlier). Today's mythologists take Ra to be the Sun.

There are also a number of *Anneads*, theologies of 9 gods, which mostly duplicate the *Ogdoad* narratives. Reading Egyptian creation mythology in light of the knowledge of how, for seven thousand years the sky was dominated by the ball plasmoids in the south and electrons streaming past the Earth from the north, will enlighten much of what today is considered as symbolic and metaphorical interpretations of "philosophical concepts" far beyond the reach of the Egyptians of deep antiquity -- "represent[ing] the primal, fundamental state of beginnings," as Wikipedia has it. Realizing also that all of the southern display produced nothing significant until the goose and egg showed up in the north, it is obvious why the earliest creation mythology is so foreshortened. Interestingly, the *Ogdoad* relates that when the gods of the south die, Ra of the north tends to their funerals.

In antiquity Khepera brought the first land into being by calling out its name. This suggests that the ball plasmoids came into being before the lines of electrons, which connected, as certainly the pre-Olmecs also acknowledged, to the first formless round mass of Saturn in the north. The "speaking" or "calling out" might be an electrophonic sound of the electron beams being established and possibly continuing to sound. An electrophonic sound is an electromagnetically generated sound heard within Earth's atmosphere of a phenomenon experienced outside the atmosphere, as, for example, the explosive electric breakup of a meteor.

... Lepenski Vir

The oldest cemetery in Europe is a site facing the raging Danube river at Lepenski Vir in Serbia, and dating from 6250 to 5500 BC in calibrated Carbon-

14 dates (using the latest corrections). The dates are long after the three southern plasmoids had disappeared.



[Image: Headstones at Lepenski Vir, Serbia. After world-archaeology.com]

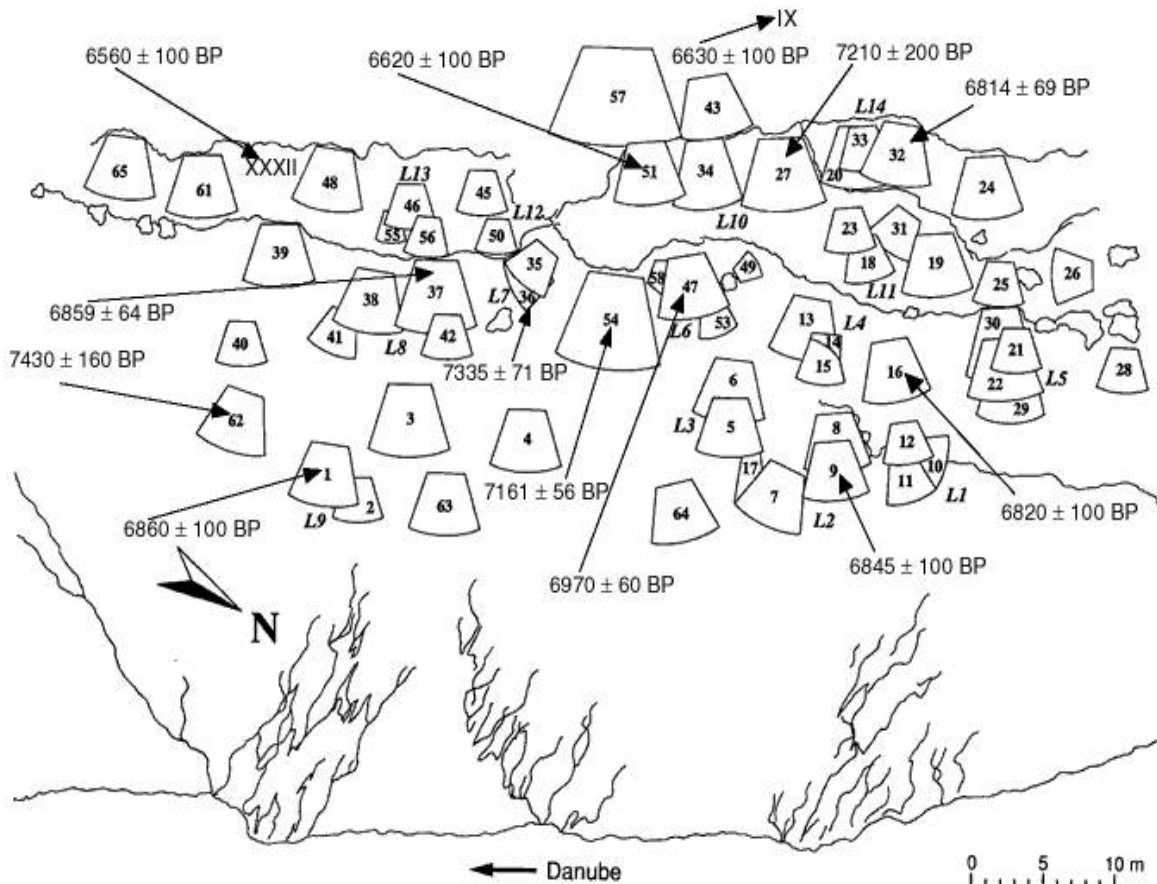
Archaeologist Dragoslav Srejovic, who first excavated the site, believed it to be a village. But the site has some major drawbacks. It is located on a shelf a few feet above the river, which at this location is a whirlpool (a "Vir"). The site is flooded twice a year.

There are about 50 or 60 grave platforms built over the span of 750 years. The floor plans are roughly trapezoidal, and covered with calcined limestone (plaster). The structures each include a centrally located rectangular hearth, and a circular stone pit (a stone with a circular depression), and an "altar" stone which is level with the floor. The plaster floor is only an inch thick at the edges, but as much as 8 inches near the hearth, and covers all the stones defining the hearth.



*[Image: Lepenski Vir excavation site;
after Wikipedia, held to be a house platform. After waa.ox.ac.uk.]*

The structures are 12 to 27 feet (4 to 9 meters) wide at the front and have a depth of about 9 to 20 feet (3 to 7 meters) from the front. Only the largest of these, of which there are very few, would allow walking upright past the center which was occupied by the hearth and hollowed stone. There was little room in these structures because the sides were constructed as leaning roofs, as determined by the posts-holes found in the platform plaster. Archaeologists insist that these would accommodate five people easily, but later platforms are smaller, and none of the smaller structures would do so. It looks more like these were no bigger than what would be required to accommodate a body.



[Image: Lepenski Vir site diagram, with
C-14 dates. After Radovanovic,]

I have seen book illustrations suggesting that the platforms were a village campsite (occupied for 750 years!), but most of the platforms are not large enough to accommodate even two crouching persons. It is also hard to imagine why a one-person hut would require a stone and hard plaster floor, and a central hearth which was certainly not used extensively over the hundreds of years of occupancy. The same illustration showed canoes pulled up at the adjacent beach of the Danube. There is no beach, the site is on a low cliff, and the river is unnavigable here because of the whirlpool.

The graves are oriented with the narrow (back) end toward the west and southwest, but a view of the west sky is everywhere restricted by high cliffs and mountains.

There are occasional skulls and bones under the stone slabs or in the ground adjacent to them. The platforms look more like excarnation floors. The platforms are thought to have been covered with thatching. They were open at

the wide end and toward the narrow end, and some have a standing stone carved in representation of a fish-headed woman, naked, with clawed hands opening her vulva. At times this is reduced to just the genitalia. The standing stones at times remain uncarved. The figurative stones (and the uncarved ones) are always off-center of the structure.

The imagery here is obviously modeled on what is seen in the sky at this time -- the Opossum of the south, the far plasmoid of the Peratt Column after 10,900 BC. The two closer plasmoids probably could not be seen from ground level. Only in one late platform are two additional fish faces added, in front of the hearth, for a total of three. The sculptures might also represent the Fat Lady in the north sky, certainly seen at earlier times, who is the model for the Venus Figurines, but I doubt that. The trapezoidal shape of the flat floor stones perhaps reflect the trapezoidal plan of many of the Nazca lines reported on by Peratt.

... Sheela Na Gig

The standing stones at the narrow end of the slabs at Lepenski Vir are the oldest stone sculptures in Europe (Göbekli Tepe in Anatolia is earlier), made by what would be postulated to be the "Original Europeans" -- preceding the "Old Europeans" identified by Marija Gimbutas and before the later Kurgan invaders.



[Image: preserved Sheela Na Gig, Ireland. After historicimpressions.com]

I would postulate that the farmers who invaded Europe after 5600 BC crowded the "Original Europeans" ever further westward, to end up in Western France, England, and Ireland. And, in fact, it is in Ireland, England, and Normandy that we again meet up with these images, known in Ireland as the "Sheela Na Gigs" - - carved stones set in church and monastery walls and looking almost identical to the carved stones at Lepenski Vir. They date from at least AD 1200, but are relocated from earlier sites. This is a continuity of images spanning over 12,000 years. The concept behind the depictions, however, has been totally lost. No one knows the purpose of the Sheela Na Gigs.

... Dilmun

The Sumerians held that the city of the Gods or the dead, Dilmun, was located in the south. (Later Babylonians held it to be an island in the north.) Dilmun is an island in the Persian Gulf, called "al-Bahrein," a name which translates as "two oceans," the meeting place of the salt sea and the sweetwater ocean of the sky.

Before 4077 BC Dilmun had probably been the island of the Gods (or the God) in the south, the ball plasmoids seen at the end of the Peratt column of remote antiquity, seen in the ocean of the Absu. Bahrein is a mountaintop rising out of the Persian Gulf. In remote antiquity a Tunnel was dug from the mainland under the ocean floor to supply fresh water to the island. It was an important place.

Ancient references to Dilmun also place it "in the east" or "where the Sun rises." Because Dilmun is identified as the land of the dead, it would be suggested that perhaps there is a very old association with the ball plasmoid at the end of the Peratt Column in the south. Then the "sun rise" would be the daily or nightly rising of the plasmoid out of the southern ocean.

... the Fish-Man Oannes

In about 280 BC, Berossus, a priest of Babylon, brings to Greece the oldest authentic historical documents of Mesopotamia -- the *King List* and the myth of the Fish-Man Oannes, a God who preceded all the other Akkadian and Sumerian Gods. The *King List* as presented by Berossus was quoted by the Greeks of antiquity and remained the only version in use for the next 2200 years -- until the 19th century AD when cuneiform versions were found.

Oannes, related Berossus, had the face or head of a fish, and arose from the sea each day to teach mankind. This is an older mythology than the better-known tales of Marduk based on the Babylonian *Enuma Elish*, written after 1800 BC. Alfred de Grazia, in *Chaos and Creation* (1983), paraphrases Berossus from other sources:

"The Fish-Man, Oannes -- goes the legend -- came ashore among the first and savage people of Babylonia, and he taught them the human arts. He also told them the history of the world from its beginnings."

"There was a time in which there was nothing but darkness and an abyss of waters, wherein resided most hideous things...." (Another translation of the same passage says: "In the early days, before the Earth was yet made, a number of terrible beasts were the masters of the heavens.")

Interestingly, another detail is that the fish-head of Oannes was carried above his normal human head. The fish-head probably defines the middle plasmoid of the Peratt Column, where the lowest (nearest) is clearly drawn as a face in Australia and South America. At the southern latitude of Sumer the face on the plasmoid might well have been seen from under the closest rings of the Absu. The Oannes myth was Ubaid in its source, not Akkadian or Sumerian. It remained in the background, for it never found duplication in other Eastern Mediterranean sources. The ocean from which Oannes rose daily is either the Persian Gulf or the Indian Ocean. It is surprising that the mythology from this era does not involve the stick-figure "squatting man," perhaps because of the location of southern Sumer at about 30 degrees latitude.

The Oannes fish-man or a fish-woman occurs repeatedly among other sources most often as a water god or goddess. Philip Coppens writes the following: [\[note 14\]](#)

"The 'Acropolis of Athens' was in ancient times known as the Cecropia, in honour of the legendary serpent-man, Cecrops, the founder and first Athenian king. Cecrops means 'face with a tail', and though often said to have the bottom half of a serpent, some sources say it was a fish-tail -- thus bearing some resemblance to Oannes of Babylonian fame. Like Oannes, Cecrops was identified as a bringer of culture, teaching the Athenians marriage, reading and writing, and ceremonial burial."

-- http://www.philipcoppens.com/athens_heights.html

... Mari the spinner

Besides the inhabitants of Western France and Ireland, the Basque of Northern Spain could be identified linguistically as "Original Europeans." The major deity of the Basque, to this day, is the Goddess "Mari," an old woman who spins. She does not weave, only spins out threads. Her husband is a snake. She is (among other things) known as the Goddess of the oven (or hearth). Like Oannes, she is associated with wild animals. This again looks like the plasmoids and the Peratt Column in the south.

... Neith of the arrows

The Egyptian Goddess Neith, although equated at later times with Isis, is of greater antiquity, mostly associated with the western delta region, but

recognized throughout Egypt. All of the first dynasty queens take her name. She is associated with weaving (rather than spinning, and wears a shuttle as a headdress at times), creation, and water. The North African Berber nomadic civilization would explain her genesis and attributes best as the Berber Goddess Ta-Nit. In Ghana her name among the Akan is Ngame, which means "shining one" or "brightness." The Akan believe that in the beginning a Mother Goddess, visible in the sky like the moon, gave birth to the universe. As with Neith, who is the mother of Ra, she too is the Mother of the Sun. Creation was started by shooting arrows infused with life across the universe.

Among the Egyptians, Neith was described as sending sparks into the waters of Nun to create life from the inertness of the primordial waters. Nun is in the north. She is described also as the Mother of the Sun God Ra -- Saturn as the Sun. Neith's symbol is two arrows crossed like the letter X, which is true of Ngame also. In early dynasty periods, Neith was referred to as "Opener of the Ways."

The reader will recognize the "shining" and "brightness" in the sky as the southern plasmoids. Similarly the arrows and the "ways" clearly are the streams of electrons. She thus was also associated with care of the dead. We can recognize the "ways" as the electron beams to the far south, along which the dead traveled.

It is amazing that this single Goddess can be recognized throughout all of North Africa. But as these people were all witness to the same signs in the sky, it is perhaps not so unusual.

... the magic mountain islands

In 219 BC Hsu Fu, with the blessing of the emperor of China, sets out with ships to discover, as his petition read:

"... the three magic mountain islands, Pheng Lai, Fang-Chang, and Ying-Chou, inhabited by immortals ... in the midst of the Eastern Sea.

Paraphrasing from the original Chinese source, the *Shih Chi (Records of the Grand Historian)* of circa 90 BC, a compilation of history from 2600 BC through 100 BC, Joseph Needham, in *Science and Civilization in China* (1979), writes:

"These three holy mountain isles were reported to be in the midst of Po-Hai [the near Pacific], not so distant from human habitations. ... Many immortals live there, and the drug which will prevent death is found there, but the difficulty is that ... before you have reached them ... these three holy mountain isles sink down below the water."

We know better. We know that the three islands sank below the waves on a daily basis. We know that from a perspective above the equator the islands floated in the celestial sea of the Absu, and as they sank below the waves, they in effect sank from sight below the horizon.

... the *Kojiki*

The first compilation of myths and history was made in Japan in AD 628 and published on imperial orders, and named the *Kojiki* -- *The Record of Ancient Matters*. Unlike the Chinese *Shih Chi*, this history starts much earlier. The opening lines, under the heading of "The Beginning of Heaven and Earth," identify the names of three Gods, and two additional deities born next from "a thing that sprouted up like unto a reed-shoot," at a time when the Earth "drifted about medusa-like."

"The names of the deities that were born in the Plain of High Heaven when the Heaven and Earth began were the deity 'Master of the August Center of Heaven,' next, the 'High August Producing Wondrous' deity, next, the 'Divine Producing Wondrous' deity."

"These three deities were all deities born alone, and hid their persons."

"The names of the deities that were born next from a thing that sprouted up like unto a reed-shoot when the earth, young and like unto floating oil, drifted about medusa-like, were the 'Pleasant Reed Shoot Prince Elder' deity, next the 'Heavenly Eternally Standing' deity. These two deities were likewise born alone, and hid their persons."

"The five deities in the above list are separate Heavenly deities."

-- *The Kojiki*, B.H. Chamberlain, tr., (1882)

The first three gods of the *Kojiki* have to be the three plasmoids mentioned in numerous other mythical histories, and identified as three in number by Peratt. The "next" two gods "sprouting unto a reed shoot" are likely the appearance of

Saturn, the "Heavenly Eternally Standing" deity, and Uranus, the "Pleasant Reed Shoot Prince Elder" deity. The sequence suggests that Uranus appeared before Saturn clearly showed.

... Cerberus, the guard dog of Hades

Cerberus is the dog who guards the gates of Hades, letting the dead in, but not out. His name may have derived from the name of one of the dogs of Yama, and translates as "Spot." Yama is an early Vedic god of death. About the use of Cerberus in Greek literature of antiquity, Wikipedia writes:

"The depiction of Cerberus is relatively consistent between different works and authors, the common theme of the mane of serpents is kept across works, as is the serpent's tail. Most literary works of the era describe Cerberus as having three heads."-- Wikipedia

The reader will at this point recognize the three ball plasmoids as the three heads, the congestion of lines of electrons crossing over the plasmoids as the mane of snakes, and the extended lines pointing to Earth as the serpent tail.

Hades, of course, is where the dead go.

... the Phoenix bird on fire

Slightly less easy to recognize, but of a much wider geographical distribution, are the varied stories of the Phoenix bird, who rises up from the ashes of setting itself on fire at an interval of 300 to 500 years (500 or 540 years per de Santillana, from Chairemon, AD 30 to AD 65). The mythology occurs in Egypt and in the Eastern Mediterranean, in Arabia, Persia, India, and China (but not in lands below the equator). It is always a bird, at times a very large bird or a bird of prey, and generally with a long tail.

This suggests that the Phoenix, as the ball plasmoid, moved into position, that is, it lowered from the location of Earth (or likely, further north) to a position below the South Pole. The reverse of this might be the equivalent of setting itself on fire. On collapsing, which would happen when the Earth relocated past one of the three plasma chalice boundaries, the southern plasmoid would move north, past the Earth, and briefly engulfing the Earth in the process. The travel from the south and the travel to the north would be seen, for these entailed vast distances. The movement close to Earth and past Earth would not be seen since

this happened likely at speed of 1000 miles per second (1600 km per sec). The Earth is 8000 miles (13,000 km) in diameter.

The *Popol Vuh* specifically notes that the three gods of the south visited the five gods of the north three times to undertake negotiations concerning creation. This would be the three collapses of the southern plasmoids.

In the Eastern Mediterranean the name "phoenix" is the color purple (as the Phoenicians were also associated with). Purple or violet is the color of the light of an electric arc.

There will be many other Gods and Goddesses of antiquity all identifiable as the ball plasmoids -- with snake tails, snakes for hair, and in families of three. Medusa the Gorgon is one of three sisters, has snakes for her hair, and could not be looked at -- not because the viewer would turn to stone, but because of the blinding brightness.

... the Pacific Islands

The date of 5000 BC given by Peratt, or even the range of "10,000 BC to 2,000 BC," contradicts what we think we know of the colonization of the islands of the Pacific. There is not a single sign of human occupation on any islands east of the Solomon Islands before 1200 BC. After 1200 BC, Fiji, Samoa, and Tonga are reached, but the Cook, Society, and Marquesas islands are not reached until AD 600. Hawaii is settled later and Easter Island not until AD 900. There are no signs of humans on any of the Central or Eastern Pacific islands except for one thing: the thousands of indelible petroglyphs dating from 12,000 years ago -- left behind by an earlier population which had been swept off the islands *en masse* in 3147 BC and again in 1492 BC. The petroglyphs appear by the thousands throughout the Pacific islands, including Hawaii and Easter Island. In later chapters I'll discuss the flood of 3147 BC and the compressive electric field impact of 1492 BC in the Central Pacific.

... Muspelheim from the *Younger Edda*

The *Younger Edda*, written in Iceland in about AD 1200, and passed on through the 15th century, in a number of copies, relates also the bright lights of the far south. The original text is probably Danish, and we know from Peratt that the plasmoids of the south were seen at a north latitude of 70 degrees in Norway,

north of Iceland and well north of Denmark. Speaking of existences before the Earth was created, the *Edda* reads:

"Many ages before the earth was made, Niflheim had existed, in the midst of which was the well called Hvergelmer, whence flow the following streams..."

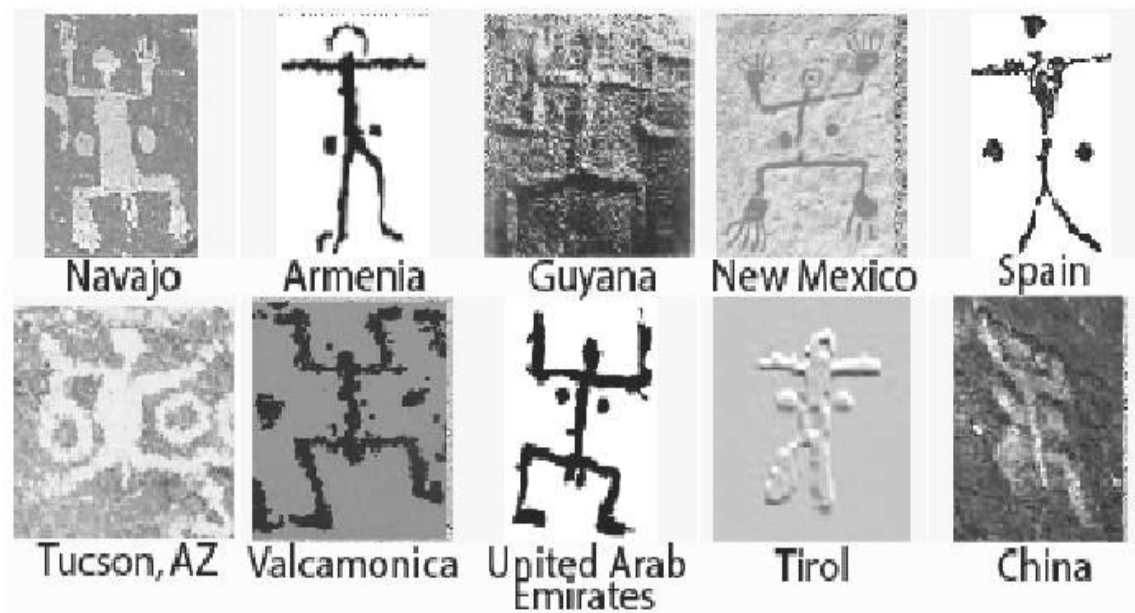
This is followed by a list of 12 names. The reader at this point will recognize that Niflheim, "Mist Home," as Wikipedia obligingly translates, is Saturn enshrouded yet in mists, and from it flow what looked like some 12 streams, headed south as the only direction away from north. These were probably 14 streams, and as such were the electron beams from Saturn headed south past the Earth and to the ball plasmoid below the South Pole. Only the inhabitants of the far north would have noticed that the "rivers" started from a location above the pole. That Niflheim was in the north, the remainder of the paragraph makes clear (not quoted here).

The *Edda* continues with a description of the southern ball plasmoid:

"Still there was before a world to the south which was called Muspelheim. It is light and hot, and so bright and dazzling that no stranger, who is not a native there, can stand it."

The *Edda* continues with a description of the course of the streams to the south, and how they frosted up and overlaid each other "clear into Ginungagap" -- where the last name translates as "the yawning abyss." To certify the identity of the Abyss with the Absu -- the equatorial bands -- the *Edda* continues:

"But the south part of Ginungagap was lighted by the glowing sparks that flew out of Muspelheim. ... And when the heated blasts from Muspelheim met the rime [of the rivers], so that it melted into drops, then, by the might of him who sent the heat, the drops quickened into life and took the likeness of a man, who got the name Ymer."



[Image: Petroglyphs of plasmoid streamers forming into the image of the "squating man" giant; after Peratt.]

Ymer was the first giant. The *Edda* continues with the generation of additional giants, the creation of a celestial cow, which formed four milk streams, and much else, mixing events separated perhaps by hundreds or thousands of years into a single creation epic with many additional details, all before the creation of the Sun, the Moon, and the stars. Much of this can be located in time or associated visually with the expected looks of the skies after 10,900 BC, but that is not my purpose here.

... dates for the plasmoid

Dates from these sources, unfortunately, are almost entirely missing, and Peratt has yet to publish any estimates of dates. Only Book 11 of the *Chilam Balam* suggests a date of 8347 BC as a ending of the "first creation" -- where the "first creation" has to be recognized as the first blazing of the three ball plasmoids. This most likely started in 10,900 BC.

This measure is based also on the coincidental interruption of the count of years at 13 Baktuns in 3147 BC, when Mesoamerica claimed the end of a "second creation." Thirteen Baktuns before 3147 BC brings us to 8347 BC. Thus the first episode (10,900 minus 8347) lasted 2553 years.

The other significant indication, long overlooked, is the fact that any number of Maya stelae, which proudly display their important local event dates, start out by first introducing the "start of creation" with:

"13 Baktun, 0 Katun, 0 Tun, 0 Uinal, 0 Kin, 4-Ahau 8-Cumku, was (first) seen the image."

At times the reference is simply to "an event" or the fact that 13 Baktuns were completed. At times only the day names of "4-Ahau 8-Cumku" are used. Some stelae reference the setting in place of the three celestial hearthstones, an event which could also describe the aftereffect of the fall of the Absu in 2349 BC (end of the "third creation").

But a number of stelae spell out what the "image" was -- it was the "image of the turtle" which was first seen at the start of creation. I should point out also, that sculptures of turtles are frequently seen in the archaeological sites along the Pacific coast of Guatemala, many of which predate the first Olmec sites of Mexico. What these turtles symbolize has remained obscured to archaeologists.

The Maya conflated the end of "first creation" with the start of the "second creation," as is typical for a people who considered time -- or the effects of time -- as repeating. Under this condition the first appearance of the turtle is the first appearance of the southern plasmoid. We have nothing concrete to suggest the first appearance of the three plasmoids except two things: First, that directly after 10,900 BC Earth was in electrical contact with Saturn -- as shown by the destruction of North America. Second, that the Maya and others in Mesoamerica only took note of the completion of event, not the start. Thus 8347 BC (13 Baktun before 3147 BC) was likely the completion of the first creation.

I think we can thus place the first showing of Peratt's southern plasmoid in 10,900 BC with some confidence. In the iconography of the Maya, the "turtle," which appeared in 10,900 BC, at the time of the (the start of) "first creation," is often combined with the appearance of Jupiter ("Hun-Nal-Ye") as the "First Father" at the time of (end of) the "third creation" in 2349 BC. The "third creation" was probably the most important event of the past to be endlessly celebrated in Mesoamerica. It was understood that, just like the second and third southern plasmoids would seem to have appeared out of the carapace of the "first turtle" sometime after 10,900 BC, so the First Father was known to have risen out of a split turtle carapace in 2349 BC (representing the gap in the Absu at the time of the equinox), assisted by Hunahpu and Xbalanque (displaced from

the era of the 7th century BC). This scene is repeatedly shown on bowls and vases.

As I will expand on in following chapters, in 4077 BC Saturn went nova and lit up to be the "sun" for the next thousand years. At that time Saturn connected to Earth with streams of electrons -- rather than bypassing Earth. That would have been the end of the southern plasmoids.

... the End of the Peratt Column

After 4077 BC Earth would be (more or less) below the south pole of Saturn, and as Saturn went nova, a plasma column would start up, now in the north, with its top seen rotating around the North Pole. When Saturn went nova, the shroud of plasma in glow mode disappeared at the same time. For people of the northern hemisphere Saturn and its satellites would be plainly visible, and this certainly did not requiring a perspective high up a mountain cliff. Many of the earlier images might recur. The images, again as discontinuities in a plasma column, would mostly be the same. I suspect, however, that this configuration remained consistently in place. It did not disappear periodically. The very obvious result was that they were not carved and painted as the Peratt Column in the south had been.

Although I suggested "a thousand years later" above, this is not at all certain. The standing stones at Carnac take a sudden and radical turn in the direction in which they point, from southwest to northwest, with the construction of two shorter causeways. This would have happened perhaps sometime after 4077 BC. The continuity of construction would make sense if there were also periods of time after 4077 BC when the blazing of Saturn was interrupted.

Endnotes

Note 1 --

Anthony Peratt, "Characteristics for the Occurrence of a High-Current, Z-Pinch Aurora as recorded in Antiquity," (Institute of Electrical and Electronics Engineers, *Transactions on Plasma Science*, 2003), and "Characteristics for the Occurrence of a High-Current Z-Pinch Aurora as Recorded in Antiquity Part II: Directionality and Source" (IEEE *Transactions on Plasma Science*, 2007).

The first paper matches some 84 categories of petroglyphs in form to known instabilities of laboratory produced plasma streams. The second paper records the universal southerly field of view for the petroglyphs and the minimum elevation required for observation.

What size were the ball plasmoids? The *Chilam Balam* notes that they (or it) measured "a handspan," which could represents the width of the first two plasmoids or the third and largest plasmoid. The first two plasmoids were widely suggested to be heads or faces; the third plasmoid was more likely held to be a headdress.

"Kin Pauahtun [Kan Pauahtun, the wind-god of the south] was their priest. He commanded the numerous army which guarded Ah Hulneb [the Archer] at Tantun in Cozumel, (also) Ah Yax-ac [first turtle], [a] chinab [a handspan measure], and Kinich Kakmo [fire macaw]."

The word "chinab" is capitalized in the translations of the *Chilam Balam* books done by Ralph Roys and Antonio Mediz Bolio, making it look like part of the previously identified entity. A handspan measures four or five degrees in the sky at an arm length. That's really big -- it is visually ten times the diameter of the Moon today.

The first two plasmoids are at 165,000 and 190,000 miles (265,000 and 300,000 km) from the South Pole. (By comparison, the Moon is located 250,000 miles away from Earth.) Multiplied by the arctangent of 5 degrees makes the second plasmoid twice as wide as the Earth. If the handspan applies to the third plasmoid located 435,000 miles (700,000 km) from Earth, it would represent an object more than four times the size of the Earth [**435000 * atan(5/deg) = 37864 miles**].

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Note 2 --

The "first creation" can be distinguished from the "second creation" ending in 3147 BC and from the "third creation" ending in 2349 BC. This last event is the Christian "flood of Noah." The information of when the turtle first showed or when the three stones were placed would have been from of the record of remote antiquity, from Olmec sources, since the Maya themselves were mostly invisible before about 500 BC.

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Note 3 --

In a presentation co-authored between A. Peratt, M.A. van der Sluijs, and D.A. Scott, and presented at the *American Physical Society*, April 16, 2005, there is an additional clue that this is not an aurora, but something immensely larger. The talk (and paper) is titled "Evidence of an Influx of Interstellar Plasma from Archaic Z-Pinch Recordings." The use of the word "interstellar" in the title takes it beyond any effect generated by the Sun.

However, in a publication co-authored with W. F. Yao, "Evidence for an intense solar outburst in prehistory," in *Physica Scripta* (2008), Peratt and Yao claim petroglyphs in Venezuela as representing "*mankind's visual observations of ancient aurora as might be produced if the solar wind had increased at times between one and two orders of magnitude, millennia ago,*" after a suggestion by T. Gold in 1962.

Although hinting that this might represent a coronal mass ejection 10 to 100 times as strong as has ever been experienced in recent times, neither the missing evidence nor the logic stand up to such a peculiar and long-lasting event. The use of the simile "as might be produced if" cannot be neglected. Yet by the time the authors reach the "conclusion" of this paper, the "coronal mass ejection" is held as fact.

Peratt and Yao also discuss the Nazca lines. Like Ley Lines, the Nazca lines (discussed in the text) were overdrawn for thousands of years after they no longer showed in the sky, and today are aligned to all points of the compass.

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Note 4 --

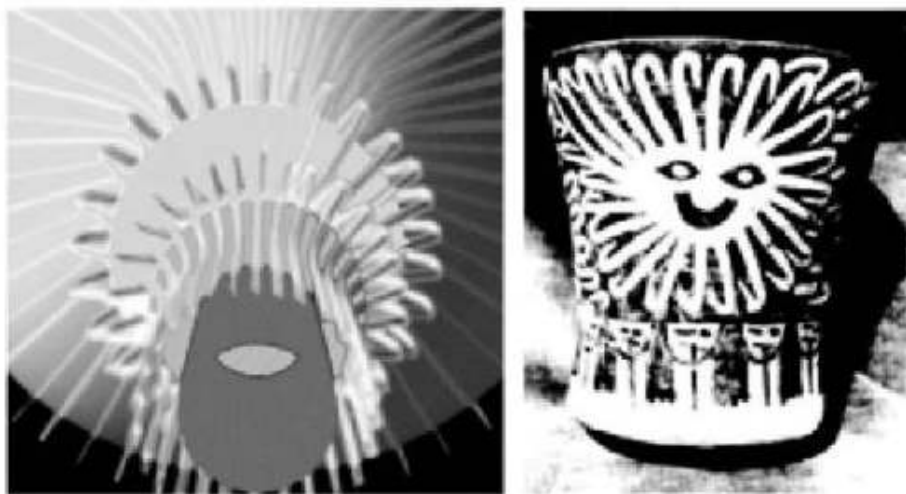
In "Evidence for an intense solar outburst in prehistory," in *Physica Scripta* (2008), Peratt and Yao also describe the phenomenon as, "*an intense Z-pinch whose relativistic electrons were directed towards Antarctica and hypervelocity protons [traveling] towards the Arctic.*" In both cases these were directed from the space away from Earth.

I should note that the direction of the electrons, "directed towards Antarctica," and protons, "towards the Arctic" (both from the region away from earth), would be correct if Saturn came in from the far reaches of outer space at a coulomb charge much more positive with respect to the Sun's electric field.

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Note 5 --

Typically a "face" is found on decorated objects south of the equator, like the mug below. They are distinguished from other paraphernalia by the snake hair.



*[Image: Plasmoid face and engraved cup from Peru;
after Peratt and Yao.]*

North of the equator the details of the plasmoid would have been obscured by the Earth's equatorial rings. The Olmecs, or their predecessors, would report on different images -- a turtle, an opossum, and three stones on fire.

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Note 6 --

The wording is not completely clear. I presume the references to 56 and 28 Birkeland currents relates to what existed in space, below the South Pole of Earth, and the reference to four streams relates to what was seen overhead at any location on Earth. This is congruent with the four stripes of the opossum, and also with the construction of the causeways in Carnac, which number 10 to 13 parallel rows, but start at four rows in the northeast.

Additionally I assume that "the filaments flow over and past the rotating Earth" does not mean that the Earth rotated within the filaments, but that both rotated together. This seems to imply that the filaments away from the Earth (below the South Pole or above the North Pole) also rotated with the Earth's magnetic field lines. But this might not be true.

The breakup of any plasma stream of considerable magnitude into 56 or 28 bundles is an inherent feature of plasma. It can be seen in lab experiments as well as at the stellar level. (See, for example, images of a nova event of 1987, listed as SN1987A, which by 2003 clearly shows a ring of 28 bright spots -- where the telescopic image is aimed directly into the flow of plasma exiting the star.)

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Note 7 --

The red background is from excited low-level Oxygen molecules at altitudes in excess of 300 miles (500 km) above the Earth.

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Note 8 --

The Nazca lines, and other sets like this in North America, England, and China, have been augmented with additional lines and figures into historical times. It is obvious that the original meaning of the lines was lost over the last 6,000 years. But everywhere they are still associated with the dead.

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Note 9 --

There is a similar mention about measuring the land in Book 11 of the *Chilam Balam*. Book 11 details the world before the creation of God the Father, and ends with a paragraph which clearly describes the creation event of 4077 BC, Saturn going nova. The mention of the White Beast, rendered totally obscure through an effort to Christianize the original text, reads as follows (from Roys):

"Bolay [beast] was the name of the serpent of the second [other] heaven. He was in the dust at the feet of [that is, below] Sustinal Gracia [sustinal grace, Saturn in the north], as he was called. Then Lonmias was formed. The sharp stone was his stone within the night. Zihontun was his stone, when these stones were fixed in their places."

"Three times they were set at the foot of Sustinal Gracia. These stones were born, they were beneath the one stone, the mighty pointed stone [Saturn], the stone column, the mighty pointed clashing stone. They were manifested [shown or seen] all over the world (by) God the Father, the first ruler."-- Roys (1933)

The count of stones "below" Saturn, that is, at the other end of the sky, are three: Bolay, Lonmias, Zihontun. They were set "three times."

Bolio's translation abbreviates the sense of "three times" with:

"... the three Stones that were to be seated at the feet of the Sustinal Grace. The stones that were born were beneath the First Stone. And they were equal sisters."-- Bolio (1930)

"Bolay" is a Mayan word meaning "beast," reminiscent of the "White Beast" -- Opossum. Bolay is identified as a serpent in Roy's text.

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Note 10 --

The occurrences of "fractal, dendritic structure(s)" in compressed streams of excited electrons is mentioned by Peratt, attributed to A. B. Kukushkin and V. A. Rantsev-Kartinov, in "Self-similarity of plasma networking in a broad range of length scales: From laboratory to cosmic plasmas," in *Review of Scientific Instruments* (1999). The patterns are identified as "heteromacs." Peratt notes that "heteromacs can include filamentary, cellular, and bubble-like clusters." These would certainly qualify as looking like people and animals moving toward the grave mound in the far south.

See also [\[http://www.pauldevereux.co.uk/\]](http://www.pauldevereux.co.uk/) by Paul Devereux on Ley Lines.

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Note 11 --

That would make the bend in the column appear below the south Pacific, and somewhat west of South America. The oldest giant statues of Easter Island (west of South America at 110 degrees longitude), all placed in a line just south of the Rano Raraku quarry, face to within 20 degrees of south.

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Note 12 --

Graham Hancock, in *Underworld* (2002), attributes the flooding of the coastal plain of India to glacial meltwaters after about 10,000 BC. This seems far too early for hewn stone structures and walls. I would suggest the flood of 3147 BC.

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Note 13 --

I do not think Venus made an appearance before 4077 BC. But both in the *Popol Vuh* and in depicted mythological subjects, the Maya, because of their well-established concepts of a repeating cycle of time, tended to lump together events from distinct eras. It is more likely that the planet identified as "Sovereign Plumed Serpent" is Mercury. Both would have looked the same with their comas, except for the magnetic field of Mercury which shaped the incoming plasma stream from Saturn. The retelling of creation was from graphical codexes, as the authors make clear. Because of these records the Maya and their predecessors seldom made mistakes in the recounting of ancient history.

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Note 14--

From Wikipedia, as a single example among hundreds:

"In Irish mythology, Danu ... is the mother goddess of the Tuatha de Danann ('The people of the goddess Danu')."

"The [name] is of Proto-Indo-European age, and seems to have denoted a water goddess in origin. A goddess Da-nu is attested in the Rigveda, and also the river names Danube (Latin: Danuvius), Dniestr, Dniepr and Don derive from the name."

"The Rigvedic Danu was the mother of a race of Asuras called the Danavas. A shortened form of the name appears to have been Da-. This form survives in Greek Damater (Demeter, "mother Da"), in origin also a water goddess. The Proto-Indo-European da-nu probably meant 'fluvial water, running water'"

Interestingly four adjacent north-south rivers, flowing into the Black Sea, are each named after Danu, as if representing the four electron beams.

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Chapter 13: The Creation.

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Contents of this chapter: [\[Starting from Chaos\]](#) [\[An Unexpected Flood\]](#)
[\[The Egg\]](#) [\[The Creation\]](#) [\[The Eye of Ra\]](#) [\[Petroglyphs\]](#)
[\[The City on the Horizon\]](#) [\[Endnotes\]](#)

This chapter will deal with the swirling cloud seen above the north horizon since about 9000 BC when the shadow of the Younger Dryas lifted, the egg in the sky after 4900 BC, the "creation" event of 4077 BC, and the following "Era of the Gods" which lasted to 3147 BC. Some of the material from the previous chapters (which you may have skipped) is repeated here. The dates used in this chapter are developed in more detail in Appendix A, "Notes on Chronology."

Starting from Chaos

By 6000 BC farming was already widespread in Europe, Asia, and Africa, and certainly in the Levant, Mesopotamia, and Egypt, in some cases dating from 9000 BC. An amorphous white shape still stood above Earth in the north, described as "mists" and "swirling clouds." Little was remembered of this period, and thousands of years later the claim is made that, at the beginning, there were no stars and no Sun, that the stars did not come into being until after the Gods had left, 3000 years later. It was universally held that the past before "creation" was a long period during which the skies were in chaos and featureless turmoil.

In support of a long time during which the Earth was enveloped in clouds and mists, I suggest a perusal of any of the "creation myths" from around the world. These all describe a swirling sky and specify that this condition lasted a very long time. But also a long darkness. The creation myths hold that there was, in effect, no history before the "time of creation."

See especially the work of Dwardu Cardona, in *God Star* (2006), which traces these ideas from diverse mythological sources. Cardona presents descriptions which suggest that the "chaos" consisted of a cloud-like mass floating either in

the sky or on an ocean. Associated with this hovering cloud shape was a twisted column of clouds or vapor reaching down to Earth to the north horizon. Cardona notes that this "creation god" was named Hurakan in parts of Central America. He also notes that the episode of darkness and the obscuring clouds are found in a different order among the legends of different people. This is to be expected, since alternating periods of chaos and darkness, dating back to 10,900 BC, were repeated three times. [\[note 1\]](#)

The placement in time of the obscuring cloud would reflect the location of Earth with respect to the lower plasma expulsion of Saturn. The previous chapter suggested that Earth would have entered the coma of Saturn in 10,900 BC, and from that time moved laterally toward being below the south pole of Saturn. As Earth entered the coma Saturn, the view of Saturn would have been obscured. Before that time and after 4077 BC, Saturn might have been seen, or, at least, the coma surrounding Saturn would have been seen.

Even after the relocation of Earth to below Saturn, it was not ever exactly below the south pole of Saturn, that is, there was not a single line extending through the axes of rotation of Saturn and Earth. It would probably have taken thousands of years before the spin axis of Earth and Saturn might line up. The reason for this should be obvious: the angle that the central axis of a planet makes with its orbit could point anywhere in the dome of the stars. This is still true today. Thus the axes of two planets would not likely be parallel, and would not coincide. [\[note 2\]](#)

After 10,900 BC, Earth was apparently within the continuous lower glow mode plasma discharge of Saturn, for the later descriptions of a "swirling cloud" in the sky is frequently accompanied by the description of a stream reaching Earth, although this could just as well be the electron streamers from the southern ball plasmoids to the sphere in the north before 8347 BC. If there was an actual plasma contact to Earth, this would have been seen as a blazing fire in contact with the ocean surface in the North Atlantic.

After 8347 BC the orbit of Earth had become established well below the equator of Saturn (I suspect), and had most likely progressively moved up toward Saturn's south pole. Earth remained in this sub-polar orbit for over 4000 years. A possible indication that Earth was located below Saturn after 8347 BC, is that a warm and moist period started, called the Hypsithermal, and extended through to the end of the "The Age of The Gods," 3147 BC. The improved climate was likely due to a modulation of the Earth's climate by our Sun. [\[note 3\]](#)

I would further suggest that it was a plasma contact from Saturn to Earth which also changed the climate favorably. It might have been intermittent between episodes of the Peratt column, or happen annually as the Peratt column reformed into stable forms. Or it may also have been entirely due to the warming of the northern hemisphere by the Sun at its higher angle. I do not know, and can only speculate.

But for now let me suggest that a warm and wet climate would result from the periodic plasma contacts with Saturn. This long period of warmth has never been equaled. A plasma arc in contact with the Northern Atlantic would produce stupendous amounts of steam, resulting in the upstreaming of water vapor and the downpour of rain and snow from far above the stratosphere -- adding to the glaciation of Greenland as a result. It would produce worldwide weather conditions unlike anything experienced today. The plasma contact would change the wind direction, increase the moisture, and moderate the climate of Earth everywhere away from the plasma contact. It would only be later, after the arc ceased, that the climate would become colder again. This is, of course, conjecture, and completely contradicts contemporary weather theories. [\[note 4\]](#)

An Unexpected Flood -- 5600 BC

As I have previously pointed out, when the Earth had dropped below the equatorial level of Saturn by about 9000 BC the climatic zones of the northern hemisphere and the tropics changed location, moving north by 10 to 15 degrees of latitude. The tropic zone of Africa moved to the Southern and Central Sahara, and the dry zone moved further north. The climate in Southern Europe, North Africa, and the Middle East worsened between 9600 and 9400 BC (the end of the Younger Dryas), and again from 6200 to 5800 BC, becoming cold and dry. The cold temperatures are open to question, but the lack of rain is certain.

Much of the drop in temperature is today blamed on the release of fresh water into the North Atlantic from the melting North American glacier. The worsened climate affected farmers in the Middle East especially, for there the rains disappeared completely. Nearly all of the Levant was abandoned for periods for up to 400 years. The same drought depopulated large areas of Southern Europe. [\[note 5\]](#)

Along the margins of the Black Sea and its river valleys, however, farming had continued during the drought experienced in Europe and the Levant after 6200 BC, and farming and fishing had concentrated there. The Black Sea region was

climatically isolated from the surrounding land areas because it formed a depression 500 feet (150 meters) below the Mediterranean sea level and the adjacent land areas, and even more so because it was ringed on three sides by mountains. The region was thus unaffected by the dry winds from the west and south. The Black Sea was also, at that time, a fresh water lake, unconnected to the Mediterranean, fed by glacial runoff from Northern Europe. The region provided fertile lands in the river valleys and deltas of the Danube, Dneister, Dnieper, and Don rivers on the north margins, and in additional river valleys on the south margins flanking the Anatolian highlands where, incidentally, grains were first domesticated. [\[note 6\]](#)

In circa 5600 BC, the Bosphorus cracked open and the Black Sea was flooded with a fury of Mediterranean salt water dropping 500 feet (150 meters) into the depression, a process mostly completed in a few months. It is likely that externally induced seismic activity caused the Bosphorus to open up. Possibly the gravitational forces exerted by the arrival of Earth underneath Saturn were responsible. Once started, the flooding was unexpectedly rapid, moving miles per day in the low-lying river valleys. Details of this event will be incorporated much later into the story of a worldwide flood by the farmers and fisherman of the Black Sea.

William Ryan and Walter Pitman, in *Noah's Flood* (1998), describe the evidence for the sudden flooding of the Black Sea through the Bosphorus in 5600 BC, and the diaspora of the mixed-farming (farming, hunting, fishing) people to Europe and Central Asia (as well as the spread of Indo-European languages). Europe was largely populated by these farmers fleeing the catastrophic flooding of the Black Sea. By 5400 BC they had reached as far as Paris.

Parts of the initial waves of people spread to Anatolia, the Levant, and Mesopotamia. At least, so it could be assumed. The warmer and moister climate throughout the world after 5800 BC allowed farming to return to the Middle East. This climate also opened up the sub-arctic regions for habitation: Norway, Sweden, Finland, northern Russia, Siberia, Alaska, and northern Canada. Thousands of years later, as the climatic conditions worsened again in the north, we will wonder why so many tribes appear to move south from the far north.

Those who dispersed to Central Asia return on horseback a thousand years later, as the armed Kurgan nomads and herders, and established themselves throughout Europe. After 2000 BC there were additional movements (of Indo-

European speakers) from south central Asia into the Middle East (Iran and Anatolia).

The flooding of the Black Sea is well established and well dated. The secondary effect of the flood was the spread of agriculture into Europe and Central Asia with the migration of people away from the Black Sea region. Indo-European languages show up as far east as the western borders of China. An overflow of Indo-European speakers from Central Asia entered India and Persia.

Despite the title of the book by Ryan and Pitman, *Noah's Flood*, this was not Noah's flood. Noah's worldwide flood would happen in 3147 BC, although the Bible will place it in 2349 BC. The Black Sea flood will, however, be the model for many later flood tales, especially in telling how people survived in boats -- loaded, of course, with farm animals, fodder, and seed.

The Egg of Creation -- 4900 BC

By 5800 BC brighter skies had returned, although possibly the Sun was not yet seen regularly. The swirling "cloud" remained, but after 900 years, in about 4900 BC, and at a location surrounding the North Pole of Earth, a circular shape became visible through the swirling clouds, a globe ten or twenty times the diameter of the Moon. Nothing seen in the north interfered with the sight of the electron beams or the plasmoids seen in the south skies. [\[note 7\]](#)

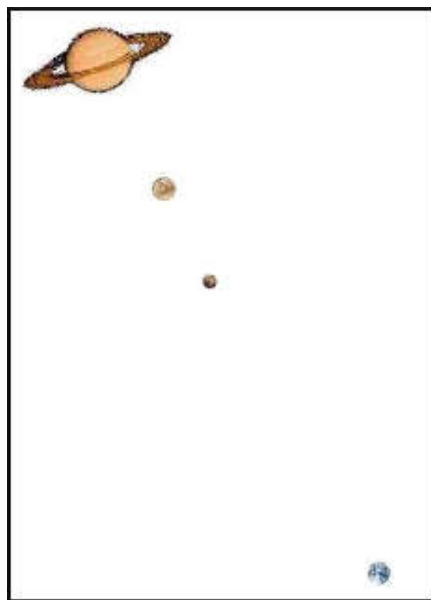
The notions of misted skies and of endlessly churning water overhead, which we have from almost all sources, might reflect experiences covering thousands of years. The globe stood, inactive except for a daily rotation about the North Pole, for another 700 years. The globe looked white. This was the planet Saturn enclosed in a coma of plasma in glow mode. All the tales recall that when God first emerged (700 years later), it was as a smaller object -- an egg.

Although in some legends of creation only a globe is remembered, other sources recall the figure as a duck or a goose, having noticed the planet Uranus, which was displaced from the central axis of rotation of the Saturnian planets (as noted in the previous chapter). Uranus still looked like the head of a bird -- with a beak and with a neck seemingly connected to the globe of Saturn. Thus any number of creation legends hold that the creator god was a (white) duck or goose. The Egyptian hieroglyph for Ra, the creator God, is a duck. The sacred animal of Brahma, the Vedic creator God, is a goose. As I have noted, from

about 5000 BC egg-shape designs are added to pottery decorations in Eastern Europe. [\[note 8\]](#)

In Greek mythology, as in Egyptian mythology, the globe is the original creator God -- Ouranus ("Father Sky") in Greece. Even before the Goose of Creation laid its egg, or before the Egg of Creation hatched, the imagery must have been understood as being alive -- even though nothing much happened for 700 years - - for it moved in a circle around the pole star on a daily basis and additionally the plasma connections would have grown and moved throughout the year as Saturn moved alternately closer and more distant from the Sun on its orbit. [\[note 9\]](#)

The egg, the real egg, not the body of the duck or goose, might have been Mercury, enclosed in a glow mode plasma, but distinct enough from Saturn to be noticed as a smaller object seen below the duck or next to the duck. With a coma Mercury would have been 10 to 30 times its current diameter.



[Image: A polar alignment of Saturn, Mercury, Mars, and Earth. The relative sizes of the planets are correct, but the distances between the planets may not be. Neptune, Uranus, the plasma surrounding these, and the plasma connection to Earth are not shown. Illustration by J. Cook.]

Creation -- 4077 BC

After the initial period of chaos, and after looking like a duck with an adjacent egg, Saturn went nova and started to blaze like a sun in 4077 BC. Saturn burst into arc mode, threw out an enormous amount of matter, and developed a corona, that is, it lit up like a sun. Initially the globe (egg) seemed to split and light up, and bright circles (rings) appeared at the periphery. The glow mode coma collapsed and disappeared suddenly, as happens in a change from glow mode to arc mode. The mass ejection formed the rings with which Saturn remained marked. Venus was expelled from Saturn and started to revolve far beyond Saturn's rings. Lightning flashed continuously from Saturn to the rings, as it also still does today.

And so the sun was born. It was much smaller than the original white coma which had surrounded Saturn.

In the 16th century Maya *Popol Vuh* the sun rises directly after the darkness of the Younger Dryas ended. To have a newly born sun dispel the darkness makes narrative sense. It is, however, not today's Sun. Even the readers of the ancient manuscripts recognized that.

"The sun was like a person when he revealed himself. His face was hot, so he dried out the face of the earth."

Seen from Mesoamerica, the "sun" rose no more than about 20 degrees or so above the north horizon. The *Popol Vuh* continues:

"... when the sun had risen just a short distance he was like a person, and his heat was unbearable."

The sun "looked" like a person, with outstretched arms, the rings of Saturn, and a twisted leg reaching down to Earth. The text here suggests that perhaps Earth was relatively close to Saturn initially, and distanced over the next thousand years. The "Sun," as noted, rose only part way.

"Certainly it was not the same sun which we see, it is said in their old tales."

The Aztecs also had a notion that the present Sun seen in the sky was only a mirrored reflection of the actual Sun. The source for this came from the same set of ancient documents. As the *Popol Vuh* claims:

"As they put in the ancient text, 'The visible Sun is not the real one.'"

It was suddenly light during the day and during the night. This constituted the start of a period of continuous light, which some creation myths claim as following the period of darkness. Actually, of course, the considerable darkness of the Younger Dryas was separated from the period of the nova event of Saturn by almost 7000 years of gray skies and overhead chaos. It wasn't dark, but it hadn't been sunny either.

"The name of the water of chaos was Nun. It was from Nun that Ra created himself, rising up on the first piece of land -- the primeval mound (Benben) out of the water lily (lotus) blossom, born from the world egg, or as a /bnw/ bird who then found and landed on the mound."

-- Gary Fletcher, "Zep Tepi," at
www.users.bigpond.com/MSN/gary_fletcher/zeptepi.html

Saturn was now seen clearly in the skies over the northern horizon, as were Venus, Mercury, and Mars, plus their satellites. Uranus would disappear behind Saturn, as Neptune had done earlier. This event was recalled throughout the world as the start of "The Age of the Gods." It was universally held that humanity was witness to this creation event. The year when Saturn lit up can be derived from the Sumerian *King List*, and from the Jewish historian Josephus -- both of which I will detail in a following chapter. [\[note 10\]](#)

The glow mode plasma which had encompassed Earth, now reduced to a single column in arc mode, with a bang. The change to arc mode must have caused a tremendous noise to be heard throughout the world. A late Egyptian source of the Third Kingdom relates:

"Amun initiated creation, in association with his sacred animal, the goose. He is called the Great Honker, who gave a great screech which stirred the inert cosmos into action. He is also called the Great Cackler -- the creative energy in the form of a goose which carried the cosmic egg from which all life emerged."

-- *Ogdoad of Hermopolis*, paraphrased

This is the sound of an electric arc striking, followed by the sounds of a sustained electric discharge. In one of the Egyptian creation epics (as well as a large number of other tales), God creates himself by his own spoken word. Spoken words were capable of great power for the Egyptians. John 1:1 is one of the last evocations of this notion from antiquity. [\[note 11\]](#)

"In the beginning was the Word, and the Word was God."

Another source depicts the creator God in coitus with Mother Earth, penetrating her "fifty times" and eventually moving away, never to lie with her again. Read that as individual arcs, which are as likely as a sustained arc discharge. (This may sum up a thousand years of celestial events.) We see this today (on a larger scale) in pulsar stars -- acting as relaxation oscillators.

David Talbott has traced the sequence of events from Egyptian iconographic and literary sources. At first only a globe shows. At some point the globe splits -- that is, a line forms horizontally across the globe. "The egg cracked," say the records, and goes on to describe the further sequence of events, involving a change in color and a differentiation of the top and bottom half. It is the primordial Yin and Yang of Chinese creation myth. [\[note 12\]](#)

The line which showed when "the egg split" is the first of an equatorial mass expulsion which will create the rings of Saturn. As Saturn now goes nova, the glow mode coma collapses, and a smaller sphere, the actual planet in arc mode plasma discharge, appears. Many myths clearly differentiate between the egg form and the blazing planet as if these were two Gods with differing names.

The tale of the egg which splits open (supposedly along a horizontal line) implies that Saturn was initially seen from an angle. With Saturn anywhere "above" the Earth in the northern hemisphere of the sky, this could happen if Earth were not located directly below Saturn, from which vantage point the rings would have looked flatter.

That Earth started out laterally to Saturn, and over an extended period of time was forced to slip lower (that is, to assume an orbit which was further below Saturn and below the orbit of Saturn), is suggested from the description provided by a number of sources. One of these is a section of the Maya *Chilam Balam* books, which notes that Uranus, initially seen above Saturn, "lowered itself into the center" of Saturn (described as a "flower") and that subsequently Saturn lit up like the Sun (see the chapter "The Chilam Balam Books"). The above description from the *Chilam Balam*, about the movement of Saturn and Uranus, represents a changing perspective due to the lateral movement of Earth under Saturn to a more central location. Uranus could, in fact, completely hide behind half the diameter of Saturn. [\[note 13\]](#)

This change in perspective would probably date to well after 4077 BC. It is astounding to think that the predecessors of the Maya (or Olmecs) could have

records reaching back that far into prehistory, but the description which I ran across, after already having settled on the movement of Earth during this time, is visually accurate.

The description also suggests that Saturn and the attendant planets -- all five of them -- were in full view, rather than shrouded in mists. But we may also be seeing an extrapolation from earlier or later sources. We have, at any rate, no similar sequence of events, that I am aware of, from sources in the Eastern Mediterranean. It is also possible that the Maya or Olmecs had a different view of what was happening overhead, not in terms of perspective, but in terms of the occluding plasma column. This suggests that the "clouded skies" (or at least some of them at various times), were composed mainly of the plasma stream in glow mode from Saturn, and encompassed only a portion of the northern hemisphere, but were not significant below 20 degrees latitude.

That the above description is accurate can be gleaned from additional text of the *Chilam Balam*, which continues with, "His heart was on fire; the Sun was within, and his name could be read." In transcribing information from ancient illustrated glyphic records, the copyist was confusing the illustration with what at a later time would become the glyph for "sun." ("Kin" -- a four-petal daisy form.) Additionally, because the *Chilam Balam* is obviously a radical abbreviation of events, we cannot tell if a thousand years have not lapsed between the start of a sentence and its end. (All punctuation is missing anyway.)

As Saturn lit up, a blazing ball would be seen, with Mercury and Mars in the center as much smaller orbs (but with Mercury still 10 or 20 times larger than Mars because of its coma). Mercury seemed to connect with four plasma streams to "the edges" of Saturn (the number varies over time). These were streams of plasma coming from Saturn far above Mars and Mercury, changing from dark mode to glow mode near Mercury. This may have continued past Mercury to land at Mars, but as a single stream in arc mode, because Mars did not have a plasmasphere of significant size. This last would not have been seen from Earth. This configuration of four streams landing on Mercury, looked from below like a four-petal daisy. This became the glyph for sun, "kin." Thus "his name could be read within."

"The rings of Saturn were known also to the aborigines of America before Columbus discovered the land; this means also before the telescope was invented at the beginning of the seventeenth century. An ancient engraved

wooden panel from Mexico shows the family of the planets: one of them is Saturn, easily recognizable by its rings."

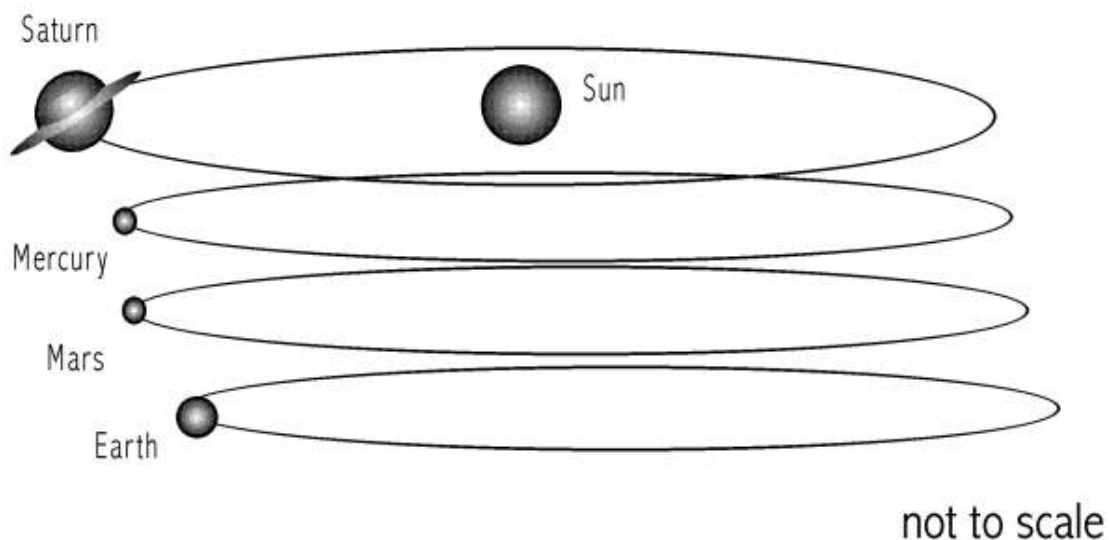
"Nor were the Maoris of New Zealand ignorant of them: 'One of the great mysteries connected with Saturn is the still unanswered question of how the ancient Maoris of New Zealand knew about her rings -- for there is evidence that they did have a Saturnian ring legend long before the days of Galileo.'"

-- Immanuel Velikovsky, unpublished document, "ring.txt" at [\[http://www.varchive.org\]](http://www.varchive.org)

Although the Maoris did not arrive in New Zealand (from the Solomon Islands just below the equator) until about AD 1200, they had witnessed the birth of God.

In the Maya *Chilam Balam* the equatorial rings of Saturn are also seen as the petals of a flower. About Saturn (Oxlahun-ti-ku), the text reads, "The flower was his mat, the flower was his chair."

Some other sources claim that Saturn's rings (as we know them today) were generated later after a cataclysmic contact between Saturn and Jupiter. In the Isis and Osiris story they are the mummy wrapping for the body parts of Osiris gathered by Isis before his body is sent to the underworld.



[Image: Saturn with Mars and Earth. Illustration by J. Cook.]

In its position below Saturn, the Earth now rotated around the Sun below the Sun's equator, so that the Sun continually remained in the northern hemisphere of Earth. Seasonal variation would have been slight, the days long, and, as was recalled at a later time, "fruit ripened all year long." This period, lasting to 3147 BC, constituted what is known as "the Era of the Gods."

The Eye of Ra

Mankind is now met with a gigantic circular shape in the heavens above the North Pole, encircled in oval rings, with a stream connecting it to Earth. And the image reveals Mercury as a white iris with the darker shape of Mars as the pupil of what now looks like an eye staring down from above.



[Image: "Wedjat" -- the Eye of Ra. Source: public domain.]

An image from Egypt, called the "Eye of Ra," captures what was seen in the sky -- Saturn as an eyeball with an iris (Mercury) and pupil (Mars) and with the eyelids and eyebrow defined in almond shaped lines above and below (the rings as seen from below at a slight angle). It is a well-known image, with what looks like a triangular leaf-like form hanging from below the eye, and a feather-like swirl drawn sideways from the lower lid away from the nose, ending in a ball. The plasma discharge from the equatorial region of Saturn (or polar region), stretching away from Saturn, may have become the line of makeup drawn from the outside corner of the eye across the cheekbones in the later depictions of pharaohs and gods. [\[note 14\]](#)

Talbott and Thornhill suggested that the leaf-form of the Eye of Ra is Mars with a plasma discharge shaped as a sword or knife. I think, however, that most times Mars was the pupil of the eye. When Mars was close to Saturn it would visually have been reduced to a mere speck. Only after Mars started to lower toward Earth and was displaced from being centered on Saturn, would it look large enough and would it have the triangular tongue shape. The tongue is a plasma of Mars dust pointing to Earth. [\[note 15\]](#)

The pointed plasma outflow extending from Mars may have become the model for the celt -- the polished stone axe -- of Western Europe during the European Neolithic (after 6000 BC) and into the Bronze Age (to 1500 BC). These axes are next to useless for cutting down trees although they would hold their own as maces or curmudgeons. Archaeologists call their owners the "battle-axe people," even though we have no evidence of battles. The tomahawk (sagaris) appears in the steppe region of Central Asia much later in the Bronze Age . The stone celts became "must-have" luxury articles and an index of wealth. A thriving business in the manufacture of very pretty celts developed in late Neolithic England and the polished stone axes are often included in senseless abundance as gifts to the Gods among grave goods.

The swirl and ball of the "Eye of Ra" clearly represents Venus, expelled from Saturn at the moment of creation, and still connected with a plume-like swirling plasma stream. This feather-like symbol of Venus is used for the headdress insignia of some of the Gods of Egypt -- as a feather ending in a circular shape at the top. (These might also represent the Earth's polar plumes -- the *axis mundi* -- discussed in the following chapter.)

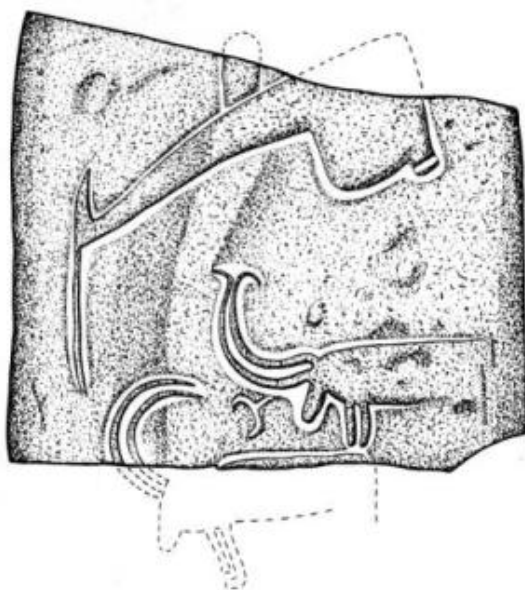


[Image: The Narmer Palette of 3050 BC, Egypt. This is a dedicatory cosmetic palette found buried beneath the floor of the temple of the Falcon at Heirakonpolis (Nekhen) in Upper Egypt. The back side is shown. This was at one time thought to represent the unification of predynastic Egypt. After ptahhotep.com.]

Alternately, it will become the cobra form (the "uraeus"), always part of the crown of the pharaoh. It is also, of course, represented as the mace with which the pharaoh "smites his enemies," as in the Palette of Narmer dating from 3100 BC, and on labels to grave goods. The "enemy" obviously is Uranus. [\[note 16\]](#)

The image of Venus with a curved plume of plasma extending toward Saturn, also becomes depicted as an ibex with wildly spiraling horns -- at times enclosing an egg, the globe of Saturn -- seen as pottery decoration in Eastern Europe and the Levant, and much later in Scythian ornaments.

The swirling Venus and its tail may also be the model for that strange Bronze Age personal ornament, the torque. Torques are composed of twisted strands of gold wire with balls at the ends. They are worn around the neck, just as Venus and its swirl of plasma encircled the head or neck of God in the skies above. We know these primarily from the European Bronze Age of circa 1500 to 800 BC. They may have had an earlier counterpart of organic material. [\[note 17\]](#)



[Image: The plow and ibex, carved in a section of the 90-foot tall Grand Menhir at Carnac, 4000 to 5000 BC. The dotted portions continue on other segments of the broken menhir. Source unknown.]

The two symbols external to the eye -- Venus with its swirl and the hanging sword of Mars (or Uranus) -- also show up early in European iconography as the ibex and the plow (or celt) inscribed on pottery, but also carved on the face of the Grand Menhir at Carnac (dated at 5000 to 4000 BC). The plow more likely

may have represented Ursa Minor, with the ibex representing Venus. With Saturn located away from the North Pole location (which was in Ursa Major at that time), the two would have endlessly circled around Saturn during each day and night. [\[note 18\]](#)

To the Egyptians the "Eye of Ra" represents the completeness at the beginning of time -- the "one-ness" at creation. The symbol first appears early in the Old Kingdom. By 1100 BC the constituent parts of the symbol (the corner of the eye, the pupil, the swirl of Venus, etc.) will come to represent a fractional notation ($1/2$, $1/4$, $1/8$, etc.) as the "parts" of the "one-ness." Egyptian mathematics of multiplication and division will remain embedded in a cumbersome fractional notation for the next two thousand years.

The Polar Configuration

What did the Polar Configuration look like to the humans below? Let me first point out that conditions changed continuously, probably even on a seasonal basis. At first Saturn stood blazing like a sun in the sky above the north horizon. But this did not last. It probably diminished to a red glow, or even the aspect of a quiet and cold planet. And if at one time an arc connected Saturn with Earth via Mercury and Mars, this was substituted for with plasma in glow mode, and at various levels and with various effects.

From the vantage point of Egypt or Mesopotamia, Saturn would have represented a blazing globe about 30 degrees up from the northern horizon, with a diameter of about 5 or 10 degrees -- ten to twenty times larger than the Moon. (At a later time, when the Earth had receded from Saturn, the globe in the sky would be much smaller.) A continuous series of eruptions could be seen rising from the edge of the globe. Surrounding the globe there were a number of rings, probably also ablaze. These rings were likely seen as ovals, crossed by lightning flashes, and interrupted by the moving shadow of Saturn. (For the first time in thousands of years the Sun was also seen.) [\[note 19\]](#)

Well outside the rings, to the left of Saturn and "above" (in the standardized image), a white globe hung suspended and attached to Saturn with a swirl of plasma. This was Venus, and would (with its own coma) have had a diameter visually somewhat smaller than the size of the Moon. It is possible that Venus rotated about Saturn in a synchronous orbit and in the same direction as the Earth, so that it would seem to stand still in the skies. [\[note 20\]](#)

Centered on Saturn was a white spot with a dark center. This was Mercury and Mars looking like the iris and pupil of the eye, but in actuality located perhaps a million miles (1,600,000 km) below Saturn and separated from each other. Impinging on Mercury were four (or more) bundles of plasma in arc or glow mode, seemingly from the edges of the Saturnian globe, but in actuality simply coming from the space further above. At times the four bundles would change to three or to five. At other times changes in the electric field of Saturn (and the Sun) would cause discontinuities in the streams, causing them to look (for example) like a swastika. At times of extreme electric conditions the streams would divide into 14, 28, or even 56 bundles. (These numbers are the standard number of separate bundles of electrons associated with any arc mode plasma outpouring.)

From Mercury the plasma would have continued to Mars. Even if at glow level at Mercury, it would have formed into a tight bundle in arc mode at Mars, since Mars could not produce a plasmasphere of any size much larger than the planet's surface.

Rather than carve a gigantic hole at the top surface of Mars as would be expected of cathode marks, three things seemed to have happened. First, the initial arcing boiled off the upper ocean. With the larger ocean missing, the geographical rotational axis of Mars shifted, bringing adjacent regions to the top. There also seemed to have been enough runoff to fill the smaller ocean, named Deuteronilus.

Astronomers have recognized this last as an almost certain possibility -- there was a disappeared ocean, two, in fact, and Mars has shifted its axis of rotation by 15 degrees.

The next series of contacts created a half dozen fulgamite lightning blisters, which are today called volcanoes, even though they are hundreds of times larger than any volcanoes on Earth, and none has ever produced a lava flow. Certainly these are very strange volcanoes for a planet of only 1/10th the mass of Earth.

Mesoamerican depictions of Mars, although composed of glyphic signs and symbols, recognize the smaller and remaining ocean as a mirror worn by Mars on his forehead. He is also depicted with a torch -- a clear indication that the upper ocean of Mars was sublimating water vapor to space in the 8th and 7th century BC.

The other condition, apparently exhibited during the "Age of the Gods" -- that is, before 3147 BC -- was for a plasma stream in glow mode to simply pass by Mars, probably using clouds of electrified dust. This is graphically demonstrated with the Egyptian White Crown and Red Crown, which represent Mars enclosed in a glow mode plasma stream. The plasma stream continued from below Mars to Earth. The iconography of this condition was explored and presented at the Kronia Conference of 2001 by Talbott and Thornhill.

Originally, and early in the sequence of events after 4077 BC, when Saturn went nova, the plasma stream probably left the lower half of Mars as sporadic discrete arcs, resulting in blistering the lower hemisphere of Mars with thousands on thousands of craters.

On approaching Earth the stream of plasma would have coalesced to a single column or a twisted intertwined column by the Earth's magnetic field, and struck the North Atlantic at the location of the north magnetic pole, where it would have thrown up a stupendous bank of water vapor. The plasma stream thus looked like the stem of a plant, rooted in the Earth, or atop a mountain (of steam), with Saturn on top looking like a sunflower.

Periodic changes in the electric conditions exterior to Saturn would cause various discontinuities in the plasma stream, so that at times the stem on which the flower of Saturn was mounted would seem to grow leaves in sets of two at the left and right of the stem. These are flattened toroids, and a common plasma stream discontinuity.

On nearing Earth the stream took a bend to land at the north magnetic pole. The location of the contact point with Earth would remain unmoved for any point of view on Earth, but the portion located 20 or 30 Earth diameters above the Earth, plus all of the stem up to and including Saturn (and its planets), must have looked like it was constantly moving in the wind. The stream looked also like a river connecting Saturn to Earth. Vedic sources call it a swizzle stick, stirring up creation.

The whole apparition, initially separated from Earth by maybe a few million miles (four times as far as the Moon is from Earth today), but eventually at a distance of 3 million miles (5,000,000 km), looked much closer than it was in reality, especially because Saturn was seen relatively low on the horizon. Details of Saturn and Mars could be clearly seen (and Mercury sporadically). The satellites of Saturn could be distinguished and seen traveling around the planet,

and were counted by a number of peoples as the Gods occupying the upper land while the Saturnian globe was recast as the "land" of the Gods.

The satellites of Mars also could be seen, even though they were quite small, but not until Mars approached Earth (as will be related in the next chapter). Details of Venus (as with Mercury) were shrouded by a coma or by a dense atmosphere, as is still true today for Venus.

Petroglyphs

The plasma stream connection between Saturn and Earth represented the most impressive display because it showed the most variability and often reshaped itself into geometric patterns, looking like a leafed tree or a puffy beard. I doubt if the stick figure man appeared as part of the northern plasma streams. Neither the *Chilam Balam* nor the *Younger Edda* have references to giants outside of very remote antiquity.

The plasma connection to the Earth looked like a stream of water, entwined snakes, rotating twisted ropes (Birkeland currents), or a circle of bright columns (in arc mode), although this last depended on viewing from a select perspective in northwestern Europe. In the nature of a plasma stream, it was always alive, always changing, although it could be expected that the various forms would take months to form. As the flow of current varied, it assumed many different shapes, looking at times like a stairway or even a set of stepped arrowheads.

The "stairway" form and the related "arrowhead" form have been observed in experimental discharges (lasting only milliseconds) but can reliably be scaled up in size and extended to much longer periods of time. The images show up in myths (and in petroglyphs) on all the continents. The plasma stream connected to Earth at the magnetic pole, not at the geographical North Pole. Where the plasma stream touched Earth a gigantic cloudbank arose in the North Atlantic and enormous auroras played at the edges. Thus it looked like a tree rooted on a mountain at the Earth, but swayed away from this location further away from Earth. [\[note 21\]](#)

The differing shapes were due to instabilities lasting for months and were probably only infrequently identical. The instabilities were caused by the changing response of Saturn to the Sun's electric field as Saturn moved closer to the Sun and further away again over the year. (Saturn and the Earth were most likely on elliptical orbits.) The plasma stream from Saturn probably represented

1,000 million amperes and may have delivered fifty trillion kilowatts per second for a thousand years. [\[note 22\]](#)

A plasma instability is a deformation of the plasma stream, which otherwise has the simple form of a conduit. In arc mode the conduit might consist of a circular bundle of continuous electric arcs. An instability looks like a shockwave traveling through the bundles, deforming the stream into a series of stacked toroids or a number of other forms.

An instability results from a change in the current level being carried by the plasma stream. This would occur as Saturn moved further away from the Sun and back, as would happen on an elliptical orbit around the Sun. In the case of the southern "Peratt Column" plasma stream, an instability might last for months (as suggested by Peratt). Certainly this gave the petroglyph artists plenty of time to execute a design.

The millions of petroglyphs -- some of very complex shapes -- throughout the world, initially carved after 10,900 BC to depict the southern Peratt Column, might have been augmented with the views of the plasma column in the north. Or not. The new entity in the north did not require a vantage point high up on a cliff face. Unlike the southern plasmoids which were difficult to see above the equator, and kept disappearing below the horizon, the northern apparition was easily seen by almost everyone -- at least north of 10 degrees south latitude. As a result far fewer petroglyphs can be attributed to a northerly view. There would have been little reason to draw pictures to bring back what had disappeared. And the time period was shorter and later in the history of the world -- 4000 years had passed during which almost nothing happened.

Petroglyphs have a remarkable identity over such diverse areas as the Southwestern United States, Northern Europe, Saharan Africa, Asia, and Australia. Although the rock carvings had long been identified with the plasma discharge of Saturn by Talbott and others, the involvement of Anthony Peratt with the Saturnians of Thunderbolts.info eventually allowed clear identification of the images. Peratt has, since his first contact with the Saturnians, investigated some 4,000,000 petroglyphs from worldwide sources and claims about half of the petroglyphs do not represent any known imagery except plasma instabilities.

Starting in 4077 BC, we would thus expect to see an additional set of rock carvings to appear worldwide, mostly the same forms as before, but from a new vantage point. But we do not, and probably because the apparition in the north did not dip far below the horizon, because Earth was now almost directly below

the south pole of Saturn. Additionally, humanity was no longer confronted with strange objects traveling along the overhead beams of electrons to the south. There were also some obvious conceptual difference between the objects in the far south -- which never reshaped themselves except for moving north on three occasions -- and the planets and their satellites in the north, which were obviously individual moving objects and alive as well.

We should distinguish between the plasma contact in arc mode and in glow mode. The contact with Earth probably started in arc glow mode, and seems to have lasted a very long time. It must have been a stupendous arc. The circular pattern of 56 columns of the electron beams are replicated in the construction of henges in England near the contact point with north magnetic pole.

We have no idea of how long the arc lasted, although it may have been hundreds of years. Perhaps the current density decreased progressively over time as the electrostatic charge of Earth built up and Earth relocated further from Saturn. As the current density decreased, at some point the plasma stream suddenly switched from arc mode to glow mode. The *Maya Book of Chilam Balam*, written in Colonial times, notes the order of events:

"Then it was that fire descended, then the rope descended, then rocks and trees descended."

In low-level arc mode and high-level glow mode it took the form of a twisted rope. The "rocks and trees" are plasma stream instabilities of the displays in glow mode.

High-density plasma streams tend to separate out into 28 or 56 bundles (this is even seen at galactic levels). In higher-amperage arc mode a section of the stream can take the shape of lighted bundles arranged in a circle, especially noted in the construction of henges of northwestern Europe, which consistently replicate the 56 bundles in their designs. The builders were located close to the earthly contact point, and had a point of view which looked directly up along the axial alignment of the plasma stream as it bent away from the north magnetic pole. The same count of 56 separate bundles of the arc are represented in petroglyphs worldwide. Once you catch sight of the core of the electron beams in arc mode, anything beyond disappears from view. It is the 56 brilliant dots which then become the apparent source of the plasma -- rather than a view of Saturn.

The arc to Earth might also have extinguished and restarted again, with a sustained connection in glow mode during the intermediate intervals. I'll suggest in a later chapter that the re-ignition of the plasma in arc mode was understood in Mesopotamia as the heavenly assignment of new rulers of Earth.

A common view from locations on Earth far removed from the North Atlantic contact point, show the shape assumed by the plasma stream as a shaft with a series of seven or nine disks, initiated as toroids (doughnut-shaped rings) which flattened out and turned up at their outer edges.

These are the leaves of the tree on which Saturn was mounted. The "tree" form shows up in early Mesopotamian seals and sculptures, as the "pillar of heaven" or the leafed "tree of heaven" surmounted with a globe. These were also the seven heavens of the Bible and Chinese mythology and the *djed* pillar of Egypt (with only three disks). The steps to heaven are reflected in the design of stepped pyramids in Egypt, Mesopotamia, and Mesoamerica, and in Chinese pagodas. However, the look of the Absu or Duat, with its seven rings (as seen at about 30 degrees north latitude), and periodically looking like seven stair steps in the east and in the west, when the shadow of the Earth extended across all of the Absu, might represent a more solid basis for the "stairs to heaven." [\[note 23\]](#)

The interpretation of the display in the sky in antiquity depended in part on the viewing perspective of people at differing latitudes on Earth, and how close they were to the termination of the plasma stream where it made contact with Earth. But there were many common elements. It is the snake which will gnaw at the roots of the tree to bring down Valhalla, and the snake which nests in the Sumerian Goddess Inanna's Huluppu tree. It is the entwined serpent-necked animals of the Palette of Narmer (called "serpopards"). It is the Peach tree of Chinese mythology, seen in the northwest.

To the people living much further north than the Mediterranean, the contact of the plasma stream near Earth would have looked different. The Eddas describe the plasma stream as a bridge between Earth and the "Other World." North of the plasma contact point in the Atlantic, the stream would have looked like an arch spanning the heavens from a location in the southwest to Saturn seen almost directly overhead. Norse legends call it an "inverted tree" with the roots at the top and branching near the Earth. This is very probable because, on hitting the cloudbank above the contact point, or perhaps even on hitting the atmosphere, the plasma stream might have broken up into separate strings -- not unlike lightning. [\[note 24\]](#)

The plasma stream from the heavens was accompanied by endless celestial noise as the Earth's atmosphere and crust produced a calliope of sounds in feedback to vibrations from the column. "The Gods taught us music," people will later declare. Chinese legends hold that music derives from thunder.

The Egyptians used the distinctly different shapes assumed by the plasma column as the shapes of a number of hieroglyphs. These are first seen on pottery fragments before 3000 BC (identified as such by Talbot). [\[note 25\]](#)

As Talbott has pointed out, the "bowling pin" shape of the White Crown of Upper Egypt and the Red Crown of Lower Egypt were suggested also by the descent of Mars within the plasma stream in glow mode (discussed in the next chapter). Both shapes represent the pharaoh's head as Mars, with the widened bulbous plasma stream crowning his head, especially prominent where it widened to surround Mars. The White Crown is the stream in daylight, with Mars hidden completely in the white glow-level plasma which is lit from the front by the Sun. The Red Crown is Mars seen at night, with the sunlight from behind making the red globe visible. As the Sun shines from an angle, a shadow falls on the column. This is the peculiar cutout in the Red Crown.

The City on the Horizon

During the time of the arc mode connection with Earth, where the arc met the salt water of the North Atlantic, water was turned to steam in large quantities. This mass of steam must have risen up well past the stratosphere (helped perhaps by the tidal pull of Saturn at the pole) and been forced to spread away as more steam and clouds were generated beneath it. Here it cooled and fell back as snow.

But the cloudbank composed of water vapor was of much smaller dimension than the "cloudbank" seen as a mountain by people in Egypt, Sumer, and China. This other "cloudbank," seen from afar, was a dome of plasma -- the bell-shaped bottom portion assumed by the plasma stream under certain instability conditions.

One of the semi-stable forms of the plasma stream is a series of three toroids. The center toroid flattens out to become just a cross bar. The top and bottom toroid develop bell shapes, facing up and down. This chalice form becomes the Holy Grail of Arthurian tales. The lower portion would have looked like a steep bell-shaped mountain and would have been seen from very far away.

This plasma "cloudbank" or "world mountain" may be seen today in the stupas of India or the "omphalos" (a "navel" connecting Earth to heaven) of Delphi and other sacred locations in antiquity. The plasma dome at the horizon likely rose up thousands of miles. Eventually the giant aurora or vaporous plasma might have covered perhaps 30 degrees of the circumference of the Earth. It would have been visible from 10,000 miles (16,000 km) away -- nearly half the circumference of the Earth. [\[note 26\]](#)

The upper portion, when seen in outline, where the edges of the plasma was most dense, will be recognized as the *Ankh* held by the pharaohs, or as the cartouche of Egyptian hieroglyphics, and as a similar device held by the God depicted in Sumerian seals. There are other later sources for this image, however. [\[note 27\]](#)

Along the edges of the cloud bank or auroras, fluted areas must have developed, as is typical of auroras, and would show in relief in sunlight. Such a continuously generated figure standing up to the high heavens, surrounding the strike point of the arc, must have looked like the walled cities described in Sumer, and the primordial mound of creation described by the Egyptians. Numerous records recall the "cloudbank," as it built up and broadened, as the City of the Gods. In later ages it is claimed that the Gods showed mankind how to build walled cities and temple enclosures. [\[note 28\]](#)

"The great gods created the structure of Unug, the handiwork of the gods, and of E-ana, the house lowered down from heaven. You watch over the great rampart, the rampart which An founded," (one manuscript has instead: "its great rampart, a cloudbank resting on the earth"), and continues, "the majestic residence which An established."

-- *Gilgamesh and Aga*, Sumerian, circa 2800 BC

The quotation above is from one of the Gilgamesh sagas. The "majestic residence" described here is actually the E-ana, the name of the temple of An at Uruk. "An" is the primary creation God. A connection is here made between the founding of the celestial city *before* the flood (of 3147 BC) to the city walls of Uruk (Unug), built 300 years *after* the flood -- as if they were interchangeable. The address, "You watch," is in reference to Gilgamesh waiting, at the city walls of Uruk, for the approach of King Aga of the city of Kish.

Mastabas in Egypt and China, with their exterior buttresses or regular indentations, recall the giant mountainous shape near the pole. In Egypt this

kind of wall, enclosing pyramids and temple compounds, is today called the "palace wall facade." Even common house walls in Iran during this period have regular exterior recesses which seem to have no structural function. [\[note 29\]](#)

China also records a giant mountain in the northwest which supported the Celestial Peach Tree. In China the "cloudbank" is also interpreted as the shell of a tortoise which supports Earth -- where "Earth" is understood as Heaven. Central and South America see the plasma "cloudbank" as a mountain of caves - - from which the first humans came. [\[note 30\]](#)

Along the coast of Western Europe, the bell-shaped plasma instability might have been only a slight mist to the tribes looking out on the North Atlantic, and only the much smaller water vapor cloudbank, composed of steam from the sea, would have been seen. The Western Europeans had a clear view of this local mass of expanding steam clouds, and above-ground megalithic "barrow graves" are built after 3800 BC in imitation of the furrowed water vapor shape at the northwestern horizon. Beside the overall shape of a pudding, the grave barrows of Ireland and England frequently also have regular indentations at the exterior edges. Barrow graves proliferated along the Irish and English coasts, and are found from Portugal through Scandinavia. Fewer are found further east into Europe. The cloudbank of water vapor certainly was seen as an apparition of substance -- the fortress of *Ys* floating on the ocean, as was later recalled by the coastal people. The earlier huge barrow graves, dating to 4000 BC, uncrenellated and oriented north-south, probably recall the ball plasmoids seen in the far south toward which all the traffic on the electron beams was moving. [\[note 31\]](#)

Endnotes

Note 1 --

"Hurakan," is the name in Central America for the Peratt column ball plasmoids in the south. This becomes clear from the *Popol Vuh* and other Mesoamerican sources. *God Star* was published in 2006, a year before Peratt's revelation of the plasmoids seen in the south.

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Note 2 --

The fact that at the earliest time after 4077 BC Saturn in effect reappeared out of the northern ocean on a daily basis is mostly confirmed from the name "Heart of

Sea, Heart of Lake" in the *Popol Vuh*. The northern ocean might be the Caribbean, as seen from northern South America, or the Pacific as seen from Ecuador, at a time before the predecessors of the Olmecs had migrated to Central America. See the chapter "The Popol Vuh." The "lake," at any rate, is as likely the rings of Saturn, seen from below or at an angle. These were not likely seen in direct sunlight, but only when backlighted at night. Saturn itself also would disappear in the day (as does the unlighted face of the Moon today) except for the lighted crescent.

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Note 3 --

The Hypsithermal, a period of warmer climate throughout the world from about 9000 BC to 2500 BC, is subdivided into additional smaller periods. The "climatic optimum" from about 5800 BC to 3000 BC is one of these periods. Because the Earth's orbit was at that time placed entirely below the level of the Sun, the inclination of the Earth's axis to the Sun added to the improved climate in the northern hemisphere.

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Note 4 --

Traditional thinking is that cold winds sweeping off the continental glaciers (like the North American Laurentide Ice Sheet) condensed water vapor to rains on meeting the warmer zone south of the glaciers (as in England and Europe). This is an attempt to explain the unexpectedly temperate climate south of the glaciers. But cold winds do not carry moisture.

Traditional geological and climatological estimates are based on contemporary conditions, and do not consider an alternate orbit for Earth, with the Sun at a different angle, or the effects of a plasma contact. The overall operation of a global weather system under the condition of a multi-billion ampere arc in the North Atlantic is outside of our current experience.

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Note 5 --

The two worsenings of climate in the Middle East (where we have reasonable records) suggest that the plasma contact with Saturn was not continuous, but was interrupted during these periods. Only after 5800 BC does the plasma contact remain, eventually going to arc mode. On the other hand, the northward

relocation of the dry zone north of the tropics would be enough to account the radical change in climate in the Middle East (as well as Southern Europe).

A change in the location of a climatic zone probably takes a couple of hundred years before having an effect which would be noticed in the archaeological record,

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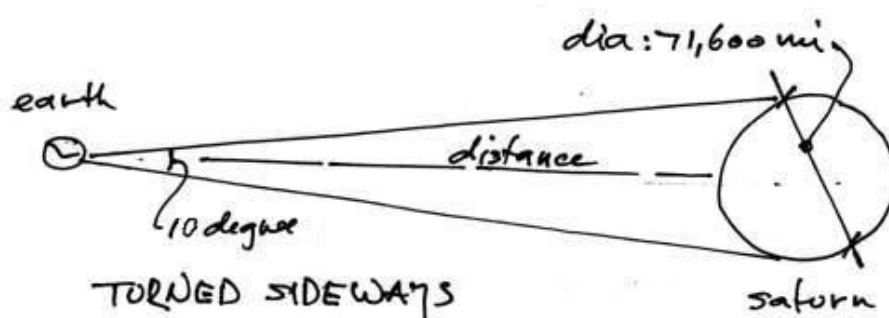
Note 6 --

The cultivation of grain apparently spread through all of the Black Sea basin during the dry period 6200 to 5800 BC. After 5600 BC, it is the Black Sea basin which becomes the source of the spread of agriculture to Eastern Europe and, within another 200 years, to Western Europe.

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Note 7 --

In terms of an image, if the globe of Saturn subtended 10 degrees in the sky (a measure sourced from Talbott, perhaps from his analysis of the perspective of some images), it would be located at a distance of $(71600) * \cos(10) / \sin(10) = 406,064$ miles (654,000 km). This seems much too close with the possibility of destructive tectonic results -- such as the Black Sea flood of 5600 BC where the Bosphorus opened up. For comparison, the distance to the Moon is $(2160) * \cos(.5) / \sin(.5) = 247,511$ miles (398,000 km).



[Image: distance to Saturn, based on a 10-degree angle of view. Illustration by J. Cook.]

These calculations are based on Saturn being the same diameter as today, and there is little reason to suggest a change in size. Ten degrees is 20 times the

diameter of the Moon today -- equivalent to two hand spans at arm's length. Thus the "globe above," would have been immense.

But the initial circular shape most likely was the coma of Saturn, which would have been much larger than the physical size of Saturn. Using a multiplier of 20, the distance between Earth and Saturn would be $20 * (71600) * \cos(10) / \sin(10) = 8,121,000 \text{ miles (13,000,000 km)}$.

Later estimates of the distance between Saturn and Earth (in "bare" form, as in arc mode discharge) are 2.83 and 2.75 million miles (both developed in Appendix B, "The Celestial Mechanics"). This would represent a subtended angle of 1.5 degrees (for the actual planet), still three times the width of the Moon today.

At any rate, seen from any latitude north of the equator, Saturn would appear at a location in the sky centered on the Pole Star. The amount it might be off from this exact location, as seen at various latitudes, would be slight if the axis of the two planets coincided. But as has been stated previously, the spin axes of Saturn and Earth would not have had any reason to be aligned initially, and would only subsequently become closer aligned. Thus the apparition could be seen from perhaps 10 or 15 degrees of latitude below the Earth's equator because it rotated around the position of the Earth's polar axis. The "day" would thus also have been determined by the apparent circling of the giant white orb about the North Pole. This movement, especially after Saturn went nova, is described in Mesoamerican Michoacan creation myths. Mexicans still play a football game with a flaming ball.

"The ancient sun was a huge celestial orb batted about by the dark, unpredictable powers of the cosmos"

-- Bernardino Verastique *Michoacan and Eden* (2000)

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Note 8 --

The egg designs could be Jupiter when Saturn's orbit fell inside Jupiter's. Jupiter, in fact, seen lighted by the Sun, but seen from below, would have looked oval shaped.

There is an obvious problem for both mythology and modeled artifacts, namely the fact that there are no references to the fact that the image of the duck or

goose may have turned during the course of a day -- so that an upside down duck would show at some point. This can only suggest that the Earth and Saturn rotated at the same speed, probably the 24-hour day we experience today or something close to it. That the day of Earth remained mostly the same for 8000 years can be suspected from the fact that the orbit of Earth never changed radically.

To suggest that the day of Saturn changed from 24 hours to 11 hours after 3147 BC, when Saturn moved to a far greater orbit around the Sun, is also not unreasonable if this is understood as an exchange of spin momentum for orbital momentum.

The rotation of Saturn around itself has nothing to do with how it would be viewed from Earth located below its south pole, since Saturn is a sphere, and differential rotation would not affect the view from Earth. What we are concerned with here is the fact that, to have the apparition constantly look like a duck or a goose, Uranus would have to be visually seen above Saturn, and not, for example, below. Last, considering the distance between Earth and Saturn, Uranus would not have disappeared behind Saturn for any part of Earth's daily rotation -- at least not during the first few thousand years. The view also would not change significantly with different latitudes of Earth.

There are actually some indications that Uranus might have been seen in different locations with respect to the globe of Saturn. The Egyptian Palette of Narmer (circa 3050 BC) depicts Uranus as a long-haired captive on the lower right from the pharaoh (who represents Saturn and Horus). The Egyptian icon called the "Eye of Ra" is another image which places Uranus "below" Saturn. See the text for details.

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Note 9 --

"How things look," or what they seemed to look like, is an abstract mental concept, strongly influenced by habit, and thus by cultural transmission. Once an identification is made, it will remain, despite changes. Cultural transmission of "what things look like" can be seen in the concept of what is seen in the face of the Moon. China and Mesoamerica hold that the Moon represents an image of a rabbit holding a book. Western Europe takes it to be the face of a person.

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Note 10 --

The "mythology" of Mesopotamia is similar to that of Egypt, India, China, and Mesoamerica, plus hundreds of other nations and peoples. The hundreds of additional stories, retellings, and legends from around the world all consistently include the same elements.

From India:

"As stated in the Puranas, there was only water all over at the dawn of creation. This water gradually began to circumambulate in a circular motion, which in turn produced bubbling foams. Besides, one kind of white element emanated from the water out of which the creator created an egg. This egg bisects into two parts and the Brahmma appeared out of this egg from where the name Brahmanda or the Universe is derived. One part of this broken egg constituted the earth and the other space. According to the Purana, the tiny parts that scattered all over at the time of bursting of the egg produced rains."

Following is a paraphrase of part of the first verse of the Finnish *Kalevala*, transcribed from verbal recollections and ballads in the 18th and 19th century AD.

"Ilmatar, the virgin of the air, leaves the loneliness of the sky and moves down to the sea, where the wind impregnates her. She drifts upon the waters for 700 years."

Overburdened now the maiden
Cannot rise above the surface;
Seven hundred years she wandered

Thus she swam as water-mother,
Toward the east, and also southward,
Toward the west, and also northward;

"... pregnant but unable to give birth. A duck flies by and lays several eggs on Ilmatar's upraised knee. As the bird sits brooding in the nest, the heat makes Ilmatar jerk her knee, and the eggs begin to change. One breaks open and the lower half becomes the earth, the upper part becomes the sky, the yolk becomes the Sun, and the white becomes the Moon."

Note that the two halves of the egg are used in the same way in the Indian Puranas and the Finnish *Kalevala*. Ilmatar's pregnancy results in a son who will

initiate creation. It is also clear that the initial lines retell the travels of Saturn from the overhead skies "down" to the ocean in the vicinity of the Big Bear.

The rotation of Ilmatar in the ocean is in a clockwise direction -- east, south, west, north. This would be as seen from below the pole star. However, the stars near the pole star rotate (or seem to rotate) in the opposite direction. As seen from anywhere on Earth, with the Earth rotating to the east, Saturn would be seen following the same path as the fixed stars about the North Pole star -- counterclockwise. Ilmatar would be rotating counterclockwise if "south" meant the direction "up" and over.

The Kalevala has Ilmatar wandering of 700 years, which I also derived from the Mesopotamian King list (see the following chapter).

People ten degrees in latitude below the equator would not have seen the birth of the "Sun," but would certainly have experienced the light. Michael Witzel, in "Vala and Iwato, The Myth of the Hidden Sun in India, Japan, and Beyond" at the *Electronic Journal of Vedic Studies* Volume 12 (2005), notes for the myths of the birth of the Sun:

"The myth relates the disappearance of the sun (or the deity of the sun) in a cave or some other enclosure, and its re-appearance (often as Dawn) after the intervention of a group of gods (and others), creating (or restoring) light and prosperity to the world."

"It is found in various forms in Vedic Indian, Greek, Japanese, Ainu, Amerindian and South-East Asian sources, and in an aberrant version even with the Hawaiians."

"... in the light of the theory of a Eurasian (Laurasian) mythology, its distribution is significant. The myth is found precisely in the areas labeled as Laurasian, irrespective of geographical distance from the pole or equator, but not in Australia and sub Saharan Africa. Also, the structure of this myth is very similar in all the versions mentioned above."

Witzel mentions that the Inca, although living below the equator, participated in this Eurasian myth.

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Note 11 --

The goose form seen in the sky, which was seen as a body with a neck and head, occurs in the fairy tale of the Golden Goose. The bird of creation is universally understood to be a duck or a goose because the coma was white.

From Hindu myths we have the following, quoted by Kelley L. Ross, and with his added comments:

"The eternal ones, Brahmâ, Hari, and Shambhu approached him, each mounted on his own vehicle: [The sacred animals of the Gods] the bull Nandi for Shiva, the eagle Garud.a for Vis.n.u, and a goose for Brahmâ.

-- Wendy Doniger O'Flaherty *Hindu Myths* (1975)

Ross notes, "There is a more dignified vehicle for Brahmâ, however, the lotus." Kelley L. Ross, at [\[http://www.friesian.com\]](http://www.friesian.com). The lotus will be recognized as the outpouring of an equatorial disk, which constitute the rings of Saturn. The same lotus is the seat of the "Companions of Osiris," the four large satellites of Saturn, in Egyptian funeral practices.

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Note 12 --

In Talbott's imagery, the rings of Saturn are missing and Venus is placed below Saturn, between Saturn and Mars. See David Talbott, *Symbols of an Alien Sky* (slide presentation, 1997).

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Note 13 --

With Earth directly below Saturn, Uranus would disappear from view, since it has a diameter of 51,000 km, and Saturn's radius, half of which would hide Uranus, is 60,000 km. It just fits.

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Note 14 --

The Eye of Ra is the only image I am aware of that actually attempts to represent some sort of extension of the rings, or beyond the rings, into the space away from the Sun. The rings could not take this shape, however, since the rings could not be altered without rapidly being lost. The "eye" -- and later a removed and traveling eye -- is a constant in both Egyptian and Chinese sources, and

elsewhere.

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Note 15 --

A circle with a dot (or small circle) in the center (representing the darker Mars in front of the globe of Saturn) was the hieroglyph for "sun" in Egypt (the God Ra) and the glyph for "sun" in China, and is still in use today as the symbol for the Sun in astronomy. The Maya use a four-petaled flower as the glyph for Sun - a larger circle with a small circle at the center. The edges of the petals represent four streams of electrons in arc mode from Saturn converging on Mercury.

A later depiction of Mars, among the Aztecs, shows Mars with its tongue extended down from the jaw (as, for example, in the center of the giant "calendar stone"). This is probably a correct depiction of plasma flow in glow mode which extended only some distance below Mars. The *Chilam Balam* likewise records Mars in this manner:

"Then it was that the word of Bolon Dzacab [Mars] descended to the tip of his tongue."

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Note 16 --

There are obviously problems with the iconography of the Eye of Ra, for the rotation of Venus around Saturn will change direction depending on whether a left or right eye is depicted. Shown as a right eye, Saturn would appear to be rotating correctly in a clockwise direction as seen from below. The right eye of Ra is thus probably the original. But in both cases Venus is seen rotating about itself in a direction opposite to the rotation of Saturn. The tradition is that the Eye of Ra is the left eye.

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Note 17 --

The description of a figure called the "Ancient of Days" in the *Zohar* of the literature of the *Kabbalah* (13th century AD) is obviously derived from the Saturnian polar imagery. It is a head, or multiple heads (skulls), with or within a strong light source, a beard, no body, but with testicles and a penis which exudes some magical liquid equated to the dew source of manna during the time of

Moses. There is also "a strong right arm," which has to represent Venus with its swirl connection to Saturn and seen on the left. The "strong right arm" also suggests that Venus was stationary as seen from Earth, that is, it revolved around Saturn in an Earth day.

The *Kabbalah* dates from about 200 BC and is a mystical reaction to the more staid mainstream theology of Israel since 500 BC. The *Zohar* was written in Spain in the 13th century AD, in badly done Aramaic (including Spanish words). Although possibly based on the Egyptian image of the Eye of Ra, it more likely represents a Celtic oral tradition.

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Note 18 --

The images of a plow and ibex also occur on ivory talismans found in Northern Mesopotamia and dated to shortly after 3147 BC.

If the Grand Menhir dates as far back as 5000 BC, then Saturn would have gone nova earlier than my estimate of 4077 BC. Its main breakage point of the Grand Menhir is one third up from the ground, typical of a cantilevered upright beam. The bottom section was shoved in the opposite direction. One section was removed and used in antiquity in the construction of a giant mound nearby. Some hold that it was purposely toppled.



[Image: Grand Menhir of Carnac. After megalithia.com.]

The Maya *Chilam Balam* reads, "First the fire, then the rope," but gives no indication of dates. After the "rope" (a plasma stream in glow mode) changed to dark mode (as can be suspected) nothing would be seen, and in fact the shape of Saturn, except for the crescent lit by the Sun, would disappear almost entirely

when seen in the daytime against the Earth's atmosphere, as happens today with the unlit section of the Moon. At night, seen from the night-side of Earth, its outline would be fully lighted by the Sun, plus a rotating crescent.

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Note 19 --

By 3147 BC Saturn subtended an arc of only about 5 degrees, if we go by the later depiction of the White Crown of Egypt, which looks like a bowling pin, with Mars (enclosed in a glow mode plasma) forming the wider part of the crown and Saturn forming the upper knob. The calculated distances between the planets in 3147 BC suggests the same (see Appendix B).

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Note 20 --

The Maya *Popol Vuh* has a different reading on the two planets seen with Saturn, seen much earlier, calling Venus and Uranus a mattock and hoe. These are placed in the ground by Hunahpu and Xbalanque when they arrive to cultivate their "garden patch." They also place an axe in a tree trunk. From my later text:

The gardening implements proceed to cultivate the ground by themselves while the boys go hunting. ... As I have pointed out, this implies a rotation, or at least a rocking of the Saturnian polar configuration as seen from Earth -- not the rotation of the planet itself, but the rotation of Saturn about the North Pole, so that Venus, the stone, and Uranus, the wood, would also rotate. These two might easily pass for a mattock and hoe.

I cannot place the axe, unless that is Mars.

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Note 21 --

The plasma connection would show as twisted ropes only in low-level glow mode. As the current increases on approaching arc level, the plasma starts to look more like a solid column. In arc mode the column would divide up into a circle of 28 or 56 separate very bright streams, at times arranged as two concentric circles of these bundles.

Anthony Peratt, in "Characteristics for the Occurrence of a High-Current, Z-Pinch Aurora as recorded in Antiquity," (Institute of Electrical and Electronics

Engineers, *Transactions on Plasma Science*, December 2003), discusses the large number of petroglyphs found worldwide. For the casual reader, this is high obfuscation typical of journal papers. Most of the tie to reality is with respect to current auroral phenomena. Peratt divides the plasma stream up into three sections, and discusses two of them. The lower section, where contact would have been made to Earth, is not discussed.

In a second paper, "Characteristics for the Occurrence of a High-Current Z-Pinch Aurora as Recorded in Antiquity Part II: Directionality and Source" in *IEEE Transactions on Plasma Science* (August 2007), Peratt makes note of the fact that half of the petroglyphs which can be identified were created in locations with an unobstructed view of the south. A suggestion is made that the aurora should have encircled the magnetic pole, but it did not. From his research he also concludes that nothing like the south polar plasma column was seen in the north -- or at least it did not require access to high cliffs to make a record. A view of the southern ball plasmoids required a view past the equatorial bulge of the Earth. See the chapter "The Peratt Column."

After the Peratt Column disappeared in the south in 8347 BC, a new arc mode column started up, from the north in 4077 BC (my estimate, based on Josephus). This second column would be subject to most of the same changes in form that the Peratt Column in the south had experienced, but there would be no need to climb cliffs to get a complete view.

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Note 22 --

Current flow in electricity is measured as **amperage** and represents the amount of electricity which moves from one location to another (like the amount of water flowing in a pipe or out of a faucet), and actually can be counted as the movement of electrically charged particles. If no particles (like, for example, electrons) move, or if they cannot move, there is no current. **Voltage** is the pressure behind the flow of current (like water pressure in a pipe). It is the difference in voltage from one location to another that causes the current flow.

The total amount of electricity delivered per unit time is measured in **watts** or kilowatts (1000 watts). This can be found by multiplying the voltage difference by the amperage, $w = v * a$. The total energy delivered is found by multiplying the wattage by time, and typically expressed as, for example, **watt-hours** or **kilowatt-hours**.

There is very little information in Peratt's article to allow a sense of the magnitude of the electric discharge of the "stupendous" plasma stream. He mentions that amperage of an auroral display scales to brightness, and suggests a level of 5 lamberts as a minimum for the former plasma stream. The auroras currently brighten only to 0.05 lamberts, at an estimated amperage of 5 to 10 million amperes.

Since Peratt speaks of a minimum brightness of 5 lamberts for the plasma stream, we could estimate the current flow of the plasma stream by scaling up. This would result in a current flow of 500 to 1,000 million amperes. I will use the figure of 1,000 million amperes. (In a later paper Peratt mentions "giga-amp" auroras. My estimate of 1,000 million amperes is one giga-amp.)

We have no idea what voltage difference drove the flow. At an estimated voltage difference of 300,000 volts between Earth and the ionosphere, the auroral display today delivers up to about 3 billion kilowatts ($(300,000 \times 10^7)/1000$).

The Sun today is estimated to present a potential difference of 100 billion volts to the surrounding exterior space. However, V. Bailey calculated 100 million trillion volts -- 100×10^{18} volt -- in *Nature* (1961). If we assume that the potential difference with respect to deep space is proportional to the volume of a planet, then Saturn might have been at 58 million volts. That would not be an unlikely figure to use, and leads to an estimate of 58 thousand trillion watts (58×10^{15} watt). The Sun puts out an estimated 4×10^{26} watts -- a lot more. (Juergens, *Pensée* circa 1972). (Another source estimates the Sun at 3.8×10^{20} watt.)

The world's annual use of electricity today is 17.8 thousand trillion watt-hours (17.8×10^{15} watt-hours), which is only the smallest fraction of the output of the Sun (from the *CIA World Factbook*, estimate for 2008).

Where did all that energy go? If the Earth had no atmosphere or oceans, the energy of the plasma stream would have scoured the surface, loosening the bonds of molecules making up the rocky surface, ionizing them, and electrostatically launching them into space. But the Earth's surface is buffered with an atmosphere and oceans. The energy would have gone to altering the molecular (atomic) constituents of the atmosphere and ocean water, but probably mainly ended up electrostatically charging the Earth's atmosphere and ionosphere. Soon the surplus would have flowed out to the space surrounding

the Earth, for it is doubtful if the Earth could have remained the end terminal of the plasma flow.

Saturn did not, even over a thousand years, discharge itself completely to the Earth (or the other planets). The discharge happened later, when Saturn met up with the giant planet Jupiter, 100 times the diameter of Earth, and three times the mass of Saturn. "Discharge" is a misnomer; actually the process is one of charge equalization, a reduction in the voltage of Saturn to match conditions in the space near the Sun.

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Note 23 --

The geometry of plasma instabilities tends to certain numerical repetitions, as with the 9 toroidal flattenings of the column (which become seven when the top and bottom disappear from view), and the 28 and 56 exterior bundles of plasma surrounding the column.

The "Tree of Heaven" on Mesopotamian seals has never been identified as a botanical species.

It should be pointed out that the Chinese pagodas, like the stupas of India, are originally Buddhist architectural forms. The pagoda form was introduced into China after 200 BC.

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Note 24 --

The plasma currently impinging on the poles of the outer planets (not Mars which has no atmosphere) and Venus produces a depression in the atmosphere, looking like the caldera of a volcano. It is thus likely that the arc to Earth struck directly through to the ocean surface by means of a similar hole in the Earth's cloudbank and into the ocean.

There are no volcano-like cloud banks surrounding these depressions for the planets with heavy atmospheres, for the plasma streams are in low level -- dark mode. For the Earth, in the past, with a plasma stream in arc mode, there would certainly have been a cone at the periphery of the arc's impingement at an ocean, consisting of rising water vapor.

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Note 25 --

The trigrams of the Chinese *I Ching* (the *Book of Changes* used for telling fortunes) seem to derive from the sight of the rings of Saturn seen from below. The shadow of Saturn would be cast by the Sun alternately on parts of the bottom and the top rings -- which would change throughout the day and seasonally.

The diagrams were taken from a nearby tribe by the Chou dynasty, and texts were assigned in the 8th century BC, although the practice of fortune telling clearly dates from the Shang dynasty a thousand years earlier. All the trigrams are identified as landscape elements -- sky, lake, lightning (sun), thunder, wind, rain, mountain, and earth -- as if we are watching a land above the Earth.

About its own origins, the *I Ching* reads:

"Anciently, when the rule of all under heaven was in the hands of Pão-hsî, looking up he contemplated the brilliant forms exhibited in the sky; and looking down surveyed the patterns shown on the earth. ... On this he devised the eight lineal figures of three lines each."

-- James Legge, translator, *The I Ching* (1882).

Pão-hsî is the first legendary emperor.

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Note 26 --

Depictions of the "world navel" (at various locations in antiquity) each represented the center of the Earth with a dome-shaped rock, at times with an entwined snake, perhaps representing a twisted Birkeland plasma stream. Each was considered to have been attached -- at one time -- to a placenta in the sky with a twisted umbilical cord.

The inflow of plasma at the poles of Saturn and Venus (today) is seen to bore a hole in the cloud cover, however. We would expect similar phenomena for the Earth. The point of electric contact was the conducting salt sea. The cloud dome of steam contained no salt and represented a much higher resistivity to the plasma flow. This argues against a plasma stream "snake" slithering down the exterior of the dome of the world navel.

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Note 27 --

A cartouche is a shape made up of a rectangle with rounded corners, looking like rope which is tied or twisted at the bottom. It is a graphic form used to record the names of pharaohs. The name is written in hieroglyphics inside the cartouche shape. The cartouche first came into use with Huni, the last king of the third dynasty, before 2613 BC. It likely represents the "shen" form of Jupiter, a disk on a bar, actually a plasma outpouring from the south pole of Jupiter which diverted left and right to the objects and dust of the asteroid belt. I have estimated in another chapter that this probably ended around 2690 BC, some decades before Huni.

The "Was Scepter," another device often depicted as being held by the pharaoh (representing his authority), looks like a putting iron with a two-tined fork at the other end, or, as someone once suggested, a "municipal water shut-off key." After seeing some of Peratt's plasma instabilities, it seems to represent the same image as the curious *Kokopelli* (a Hopi word) petroglyph figure otherwise known as "the flute player."

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Note 28 --

The information below is from elements developed in following chapters, and is used here to estimate the height of the cloudbank, both the water vapor clouds and the dome of plasma or aurora seen from further away.

The sight lines for the aurora or plasma dome as seen from Egypt (based on the orientation of mastabas and the first pyramids), China -- or more likely Mongolia -- (based on the recorded location of "the mountain at the center of the Earth"), and Ireland (based on the orientation of grave mounds) all intersect in the Atlantic somewhere near Southern Greenland and south of Iceland. In Northeastern Siberia the "world mountain" is held to be located directly east. This also leads directly to the North Atlantic. Mesoamerican monuments only date from after 2000 BC, and have nothing to do with the polar plasma column.

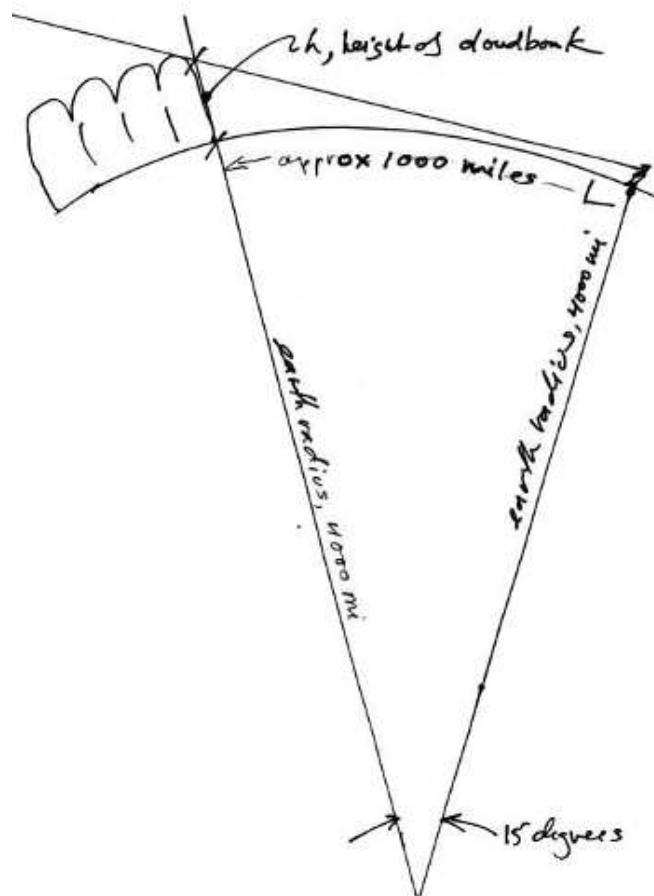
... Height of the Water Vapor Cloudbank

I doubt if the actual water vapor cloudbank exceeded 15 degrees (in width) of the circumference of the Earth in diameter, which is a circle with a diameter of 1000 miles (1600 km). And I doubt if the cloudbank extended more than a few degrees above the horizon. I am basing this on descriptions of the walled

fortress of Ys seen by the European coastal peoples, that is, I am assuming the walled city floating on ocean water would not have subtended such a large angle as to make it appear significantly different from a city or fortress, so that, for example, it would not have been identified as a mountain or island.

It is interesting to make some estimates of how high this cloudbank might have been. Placed in the North Atlantic towards Southern Greenland, at about 30 degrees longitude and 60 degrees latitude, this would be 800 miles (1300 km) from England and the coast of France, and about 1200 miles (1930 km) from Portugal. I'll use one thousand miles as an average of the distance between the edge of the cloudbank and the location of England and France. This represents about 15 degrees of the Earth's circumference.

To be just barely visible above the horizon, we can start with the sightline tangent to the Earth at the viewing location (normal to the radius of the Earth) extended to the top of the cloudbank. This is a right triangle whose two legs are an Earth radius at the viewing location and the sightline. The hypotenuse is the radius of the Earth plus the height of the cloudbank.



*[Image: height of cloudbank seen from 1000 miles away.
Illustration by J. Cook.]*

The height can be found from $\cos(\theta) = r/(r+h)$, where r is the radius of Earth. To subtend 15 degrees the apparition would have been:

$$4000/\cos(15) - 4000 = 141 \text{ miles high.}$$

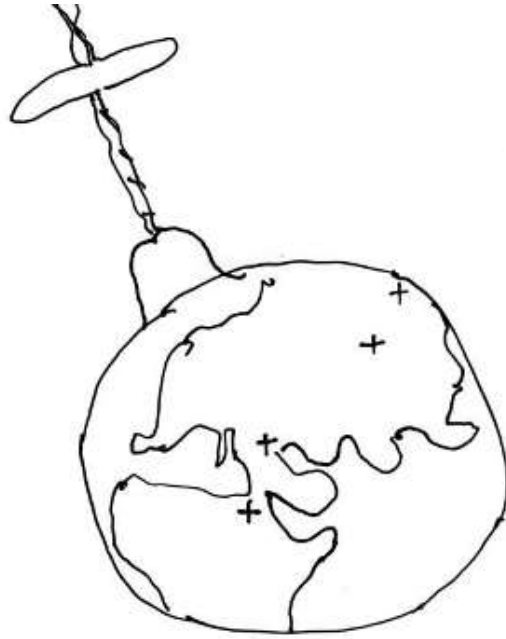
To be seen above the horizon, the cloudbank would have to be higher than this. The angle above the horizon can be found from $\tan(\theta) = \text{height}/\text{distance}$. The distance in this case is the sightline, which is the base of the right triangle we were using: $b = \sqrt{(r+h)^2 - r^2} = 1071 \text{ miles}$.

An extra 20 miles in height would show the cloudbank at one degree above the horizon -- using $\arctan(20/1071)$ for a distance of 1071 miles to the location of the cloudbank. Twenty additional miles added to 141 miles is very high, considering that the stratosphere is currently only 40 miles high. This height produces an image which has a 25 to 1 ratio of width to height (for an assumed width of 15 degrees of Earth circumference). This may be too low as an image of a fortified castle. One degree above the horizon would show the cloudbank at a height of twice the diameter of the Moon.

... Height of the Plasma Dome

In Northern Egypt, Sumer, Siberia, Mongolia, and Olmec Veracruz, the aurora or plasma dome was seen instead. Each of these locations is about 60 degrees of Earth circumference from the contact point of the arc.

Allowing 15 degrees as the radius of the aurora, each of the far locations needs to subtend only 45 degrees of the Earth's circumference in order to see the top of the aurora. I am here only making estimates for what would be the lower portion of a complete three-toroid disturbed plasma flow.



*[Image: The inverted plasma dome seen from other locations on Earth.
Illustration by J. Cook.]*

The two legs and the hypotenuse of the right triangle are defined as above, but the sight line is only extended to the edge of the aurora. As above, the height would be found from $\cos(\theta) = r/(r+h)$. For a 15-degree radius (30 degrees diameter) the apparition would only have to be:

$$4000/\cos(45) - 4000 = 1656 \text{ miles high (2666 km).}$$

Certainly exceedingly high, but not at all unlikely, especially since we are looking at the inverted cup-like lower toroid which represents the lower quarter to lower third of a 250,000 miles to 500,000 miles long plasma stream (and possibly two or three million miles).

If the "serpopards" shown on the Palette of Narmer (circa 3050 BC, Egypt and elsewhere) represent the demise of the twisted polar column in 3147 BC, as I will elsewhere suggest, it would represent an upwelling of plasma surrounding the strike point of the plasma stream from Saturn (in glow mode) which at that time would have reached high enough to be seen from Egypt, and represented as the body of a long necked animal. That would suggest a cloud bank -- not just an inverted plasma discontinuity -- reaching over 3000 or 4000 miles (4800 or 6400 km) above Earth.

Likewise, to be seen from Guatemala, at 20 degrees latitude, the dome would have to extend a minimum of 1200 miles up from the ocean. To look like a mountain or mountains, as described in Book 11 of the *Chilam Balam*, we could add another 1000 miles.

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Note 29 --

Mohenjo-Daro and Harappa in the Indus valley both have elevated platforms with crenellated walls on the west side of the city. These are most likely temple platforms. The founding of both cities are dated, with some uncertainty, to after 3000 BC.



[Image: Left: Temple wall from the predynastic temple at Heirakonpolis (circa 3050 BC). After interactive.archaeology.org. Right: Enclosing wall to the compound of Djoser's pyramid (circa 2655 BC). After Francesco Raffaele.]

The buttressed mound appears in China during the Chou dynasty, after 1000 BC, but is modeled after Central Asian forms of burials. That Central or Eastern Asia could have seen a buttressed mound seems unusual. It would suggest that the cloud dome was much higher than would be suspected.

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Note 30 --

When the Incas construct a mythology of their tribe in AD 1200, they insist that their ancestors first appeared from some local caves, as did many of the Mesoamerican tribes at earlier dates.

The "tortoise" is also, at least in Mesoamerica, the interpretation of the southern ball plasmoids first seen in 10,900 BC.

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Note 31 --

Celtic legends describe the fortress of Ys. The city was walled, with brass gates or walls, floated on oceanic waters, and sank at the end of the "Era of the Gods" when the plasma stream ceased. There are dozens of variations on this theme, with the city under various names, with details matching aspects of the Polar Configuration. The Celts were the people of the west coast of Europe after 700 BC, after their invasion from Central Europe. The expansion of the Celts out of the Hallstatt region north of the Alps started in 400 BC. The Celts brought a warfare-based society, iron weapons, horses, chariots, and extensive weaving experience.

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Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Chapter 14: The Start of Time.

\$Revision: 42.4 \$ (time.php)

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[\[The Start of Time\]](#) [\[The First Land\]](#) [\[The God Visits Earth\]](#) [\[Depicting the Past\]](#)
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Horus the Hawk

The first God of the Egyptians, as with others people, was a giant bird which traveled on a daily basis from east to west through the skies, seen either during the day or the night, depending on the season. The hawk moved from the equatorial region of Earth to the north during the period before 10,900 BC, when Earth first dropped below the level of Saturn, and eventually circled above the north horizon.

He was identified as a hawk (and had a ceremonial center at Nekhen, the "City of the Hawk," in upper Egypt) and his name was Horus, which admittedly is almost a generic name for "God" among the Egyptians, quite equivalent to "Lord." His movements from east to west for possibly 4000 years show up in the descriptive appellation "Horus of the Horizon." But more likely this is Mars as Horus, after 3147 BC and after the collapse of the polar configuration. The "horizon" at that time would be the upper edge of the Absu, above which the ecliptic was located during part of the year. With the equatorial rings of the Earth constituted an "ocean," the top edge of which was the "horizon."



[Image: detail of the four standard carriers. After Francesco Raffaele.]

Two of the four standards carried before the pharaoh on the "Palette of Narmer" depict the hawk of the east and the hawk of the west. Both of these also have banners hanging down from the tops of the poles. I will identify such bannered devices as these in the next chapters as images of the "plumes" of the east and the west, two of the four corner posts of the sky. This form (for the east and west cardinal directions) was also in use in Mesopotamia, where archaeologists have called them "circle" standards, but also identify them as "gate posts," where the upper circle is the hinge that a gate swings on. In Mesoamerica these are identified as trees, with birds at their tops.

The other two standards are easier to decode. One shows what looks like a stomach with an attached esophagus. In Mesopotamia this was originally the sign for "lugal" -- meaning "king." It depicts the southern ball plasmoids as a single entity. This becomes obvious with a look at the fourth standard, which is a plow with a jackal on top. This is the constellation of the Little Dipper, which at that time rotated around the North Pole located in the pan of the Big Dipper, plowing, like Saturn also did, the fields of the northern stars. This depiction remains in use until Roman times (as, for example, the sky map carved in the ceiling of the temple of Hathor at Denderah).

The appearance from 10,900 BC to 8347 BC of the three southern ball plasmoids seems not to have detracted from the status of Horus in the north. On the "Palette of Narmer" a hawk is shown as owner of the people of a papyrus swamp. For archaeologists this is assumed to signify the conquest of the swamp region of the delta, even though the delta was flooded following the flood of

3147 BC at the time of the "Palette of Narmer" (so says Herodotus). The papyrus blooms shown on the Palette of Narmer probably signify the Duat in the south skies, rather than the delta (also held to be a swamp full of reeds). These might signify the "Followers of Horus," which numbered six from Vedic sources (Cardona).

The four beams of excited electrons seen in the skies during the earlier period are probably the basis for the Sed Festival of the pharaohs, a ceremony of laying out the land (as a survey) for agricultural use, already depicted by 3050 BC (as on the "Mace-head of Narmer"). It obviously relates to some sort of agricultural ceremony, as shown on a number of early grave-goods tags also.

The eight lowerings of Mars during the "Era of the Gods" kept the God Horus alive in religious symbolism and iconography. The Palette of Narmer is a clear indication of this. In much later genealogies of the Gods, Horus is known as "Horus of the Gods" during the period before 3147 BC.

In 3147 BC, the home of the Gods was attacked by Jupiter, the Bull of Heaven, who had been seen in the skies as a crescent for thousands of years and is depicted on the Palette of Narmer also. I'll detail this in the next chapter.

The Changing Celestial Display

Over the course of the thousand years of Saturn's rule, 4077 BC to 3147 BC, the images in the sky differentiated into a family of Gods. New details developed from the appearances of intervening planets, changes in the plasma column, and displays of plasma discharges into the space surrounding the upper sphere. The rings seen above Saturn become the Goddess Nut upholding the sky above Geb, the God of the first land (the lower rings), where the Gods live. (Alternatively Nut and Geb should be placed in the far south, and in the period after 10,900 BC, or circa 9000 BC.)

During all this time the companions of Saturn were visible -- not only the planets Venus, Mercury, and Mars, but especially the busy moving satellites of Saturn. With these satellites milling about the original creator God, this scene becomes the model for Upper Earth as the "home" of the Gods. The seven satellites become the Gods who lived in the upper land. [\[note 1\]](#)

In both Mesopotamia and Egypt, records of the genealogies of the Gods were kept. Male and female deities were identified. However, the gender of the Gods

varied over time and by location. Names and roles were frequently interchanged, as political contingencies required. I should also note that the Gods were not initially identified with specific planets. There was, at that time, no concept of a planet at all. There were only the Gods. [\[note 2\]](#)

The images in the sky became symbolic objects in later developing civilizations, only to become unreferenced emblems at the remove of several thousand years. The scepter, crown, and throne of kings, the altar, the cross, and church steeple, the halos of saints, the sword in the stone, the swastika, and hundreds of architectural details, still in use today, all derive from the initial forms in the sky. The symbols were kept, even when the original associations were completely lost.

Not to be neglected either, are the auroras surrounding the incoming plasma stream. Where the stream of plasma connected with Earth, the outstreaming of electrons would have produced auroras adjacent to the lower part of the stream, probably of a circular pattern (responding to a circular magnetic field surrounding the plasma stream) and thus seen from afar as matching left and right. These are perhaps the lions or goats standing up against both sides of the tree of heaven as depicted in Sumerian art. At a later time these are griffins. The Egyptians use the same or similar images. Paired animals appear in the Palette of Narmer in circa 3050 BC, and other earlier palettes.

The Start of Time

When Saturn went nova, the surrounding coma disappeared and the skies of Earth cleared to also show the Sun. The creation of light was attributed to the God Saturn, and it was Saturn that was called "the Sun," not only in Egypt, but almost everywhere else on Earth.

With the (real) Sun lighting the side of Saturn, a bright crescent started to rotate around the central globe of Saturn on a daily basis, looking much like the crescent of the Moon today. This would persist even after Saturn had ceased its arc mode display.

But considering that initially Saturn was lit up like a blazing sun, I doubt that the crescent due to the (real) Sun would be seen at first. Then we can actually claim that Saturn invented time -- when it no longer blazed, but had reduced its output or dropped to dark mode. That is when a crescent would be seen at the edge of the globe, rotating counterclockwise on a daily basis.

The crescent was part of the Sun-lit half of the Saturnian globe. From the perspective of Earth, only a small section of this was seen. As the Earth rotated (below Saturn), the crescent appeared to move counterclockwise around the outer rim of the globe on a daily basis. The crescent dimmed as it moved up toward the "top" of Saturn during the Earth's daylight hours, and brightened again as it dipped down to the bottom at night. (Brightened, that is, in comparison to the darkness of night.) The first experience of clock-time had started for humanity.

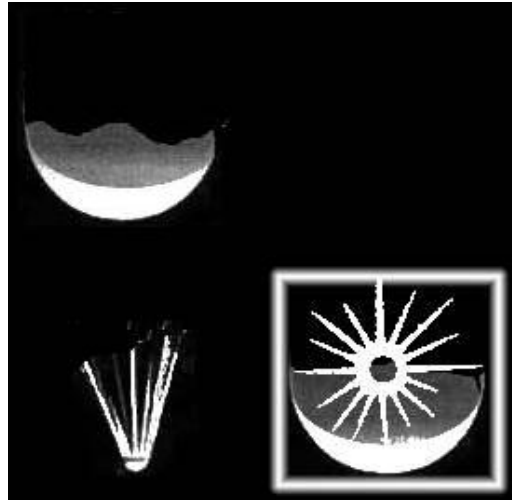
I have taken this description from Talbott's *The Saturn Myth* (1980), while attempting to keep in mind the relocation of the globes in a stack, as later proposed by Thornhill. It becomes obvious from this that the size of the crescent might vary with the seasons, for at various times the crescent would extend over more of the sphere of Saturn.

The crescent was not only experienced as a marker of the passage of day and night hours, but it was also seen as a boat -- the Barge of Heaven. It is the "ship of the Sun," depicted with a raised prow and stern, and resembling the ships which did commerce up and down the Nile. However, the "celestial ship" also clearly showed the use of oars in its movement around the edge of the overhead globe, despite the fact that Egyptian commercial vessels seldom used oars for rowing. The "oars" are streamers of plasma rising from the surface of Saturn. Seen from below, the ship would seem to rotate on a daily basis. [\[note 3\]](#)

Nearly identical images appear as rock carvings in Bronze Age Northern Europe, complete with the oars (and never with sails, although sails were in common use in the North Sea) and, like many late Egyptian images, often carrying the "Sun" as a giant globe at the center of the ship. [\[note 4\]](#)

The First Land

The Saturnian globe had developed encircling rings of light, the brightest at the edge of the globe, and four "rivers" (or more) meeting at the center and quartering the globe. The area enclosed by the inner circle shimmered like a field of grain in sunlight. It was understood to be the first land to have risen out of the waters, the home of the Gods -- Olympus, Upper Earth, Paradise, but often just called "Earth" or "The Land." [\[note 5\]](#)



[Image: Plasma streamers in high-density glow mode (or arc mode), impinging on Mercury. This is seen from the side (the Sun is behind Saturn, Earth is further below). And, in the inset box, as seen from Earth. Mars is in front of Mercury. Modified from David Talbott, "Symbols of an Alien Sky," (slide presentation, 1997).]

The streams quartering the "fields" of the upper land were actually plasma flows at glow mode or arc mode encroaching on Mercury when it was centered on (and below) Saturn. The plasma streams originating from Saturn divided into three, four, five, or eight streams at various times. (Venus, because it lacks a magnetic field, would not support a separation of the plasma flow into distinct bundles.)

Four streams would be the most likely form. When there were four of these, they were identified as the four rivers of Paradise of the Bible. When seen behind Mars these formed what looked like a star (going to arc mode at Mercury which generally stood directly behind Mars). This bright star form was understood at times as constituting a separate god or goddess. A star within a crescent (the Sun-lit edge of Saturn) is still used as a symbol in Islam. The crescent also remained in use as an emblem used in Roman (and other Mediterranean) coins through the third century of the current era, but associated with different meaning. [\[note 6\]](#)

Together, the image of an eye -- the broad crescent below it (at midnight), the outstretched wings of Saturn's rings, and the column to Earth -- looked like a giant one-eyed person astride the Earth on the north horizon with arms outstretched. The apparition moved. It changed shape and color. Venus may have moved like a snake around the central eye. And then Mars started to approach the Earth and retreat again, growing larger and smaller. [\[note 7\]](#)

Having no concept of the size of the Earth, no concept of space, having not seen the stars for the last 6000 years, and having no reference other than plants and animals and the elements of their own stone-age culture and limited localities, the Neolithic humans anthropomorphize the vision in the sky and take the apparition to be a giant person. Taken all together it was not seen as a celestial phenomenon, but as a God, or more properly as an overlord, which was a political concept just entering the agricultural lands of Mesopotamia and Egypt. [\[note 8\]](#)

Most of the southern sky of Earth was shrouded by bands of particulate matter and ionized gases which had formed in the plane of the Earth's equator perhaps from earlier plasma strikes by Saturn, dating back millions of years. This series of bands or rings extended out perhaps 8500 miles (13,700 km) from Earth, and was called the "Absu," the "sweetwater ocean," by the Sumerians (because rain came from the sky). The Earth's rings were individually disturbed by wave patterns, making the south sky look as if it were filled with a gigantic ocean. Like the rings of Jupiter or Saturn the nearest (lowest) bands moved faster than the Earth's rotation. The furthest bands moved slower than the rotation of the Earth. (Both moved to the east.) Visually the effect of these bands moving at differential speeds was quite like looking out on a sea. [\[note 9\]](#)



[Image: Neolithic pots with wave designs. Unknown source.]

When Saturn went nova and started to blaze like a sun, humans almost universally called this event "creation," despite the fact that mankind had existed from much earlier times. Why is it that this event was called "creation" by the first humans to write records, when obviously they themselves must have been created much earlier?

Probably because "creation" dealt with the creation of "Heaven" or "the Land," not with the mundane world of Middle Earth which had always existed. "Creation" dealt with the self-creation of the Gods, not mankind. The creation activities of the Gods, starting with the ball plasmoid Gods of the far south had taken thousands of years. The result was spectacular: where once there were shadows and only a dull light, there now stood before humanity a blazing Sun. It happened with the suddenness of a few hours or days. And then things were never the same again. The Gods were seen: they milled around the edges of "the land," and some (like Venus, Mercury, and Mars) were huge in size by comparison.

Mankind never reflected on its own genesis, and held itself as insignificant in the face of the stupendous prodigies seen in the skies -- the lowering of God, the auroral displays, unexpected strikes of lightning from an electrically overcharged upper atmosphere, and the play of Saint Elmo's fire among tree tops. With the blazing of Saturn suddenly everything took on a saturated color. The signs and objects in the sky had been there for over 4000 years before creation ensued. There certainly was no thought of a creation of everything out of nothing -- the only concern was to mark the creation of heaven and the Gods.

Humans conceived of their limited Universe as consisting of a bowl-shaped depression (where they lived), with the south sky filled with a sea, and the north sky now occupied by a new land which had risen out of the swirling waters of the north (another sea), and connected to Earth -- Middle Earth -- with a river of plasma. Away from the globe of Saturn and its rings, the northern stars could be seen. They would end up being called the "imperishable stars" by the Egyptians.

The God Visits Earth

Mars descends the polar column a number of times during the "Era of the Gods." Located between Saturn and Earth, Mars started to move down from Saturn, coming closer to Earth, while remaining enclosed in the stream of plasma connecting Saturn to Earth, looking larger and larger in the process, until Mars hovered above the North Pole of Earth as a giant red sphere. In effect, it was seen as the God visiting Earth. The humans were delighted and built temples to receive and house the God. The visits to Earth happened repeatedly, at intervals of 120 years or more.

Mars, located below the south pole of Saturn, acted as a short circuit across part of the electric discharge between Saturn and Earth. Mars's northern hemisphere

is marked with gigantic electrical blisters, but is otherwise devoid of the thousands of scars and craters which pockmark the southern hemisphere. The blisters on the top half are clear signs of repeated massive lightning strikes, and the surrounding swollen ground takes on the same form as more modestly sized lightning strike blisters to non-conductive surfaces on Earth. [\[note 10\]](#)

About the movements of Mars, the *Chilam Balam* reads:

"Then the heart of the flower came forth to set itself in motion"

The heart of the flower is Mars. When Mars was closer to Saturn than to Earth, it would look like a tiny dot at the center of the flower form. The flower itself is Mercury, which could be a quarter million miles below Saturn. It would look like a petaled flower because of numerous streams of plasma impinging individually on the planet in a circular pattern. Talbott has noted the form from Egyptian and Mesopotamian sources, and has described changes in the flower form. One effect is that the flower shape distorts as Mercury moves away from being centered on Saturn: some petals grow shorter, while others grow larger. The shape starts to look more like a seashell. This would also happen if Mercury (with Mars) lowered itself from Saturn -- that is, it got closer to Earth. Of course there are other possibilities: the Earth also might have moved (relocated) to an off-center position. (The allegorical "Birth of Venus" by Botticelli, has substituted Venus for Mercury. She stands, however, on a half seashell.)

When located in the chain of the conducting stream, Mercury and Mars would increase in charge and be repelled from Saturn toward Earth. After losing its surplus charge to Earth, Mars would move back up again along the plasma stream toward Saturn. Mars's mass is only one-tenth of one percent of the mass of Saturn. In the vocabulary of electric measurements, Mars is the gold leaf in an electroscope.

This movement easily explains the apparent increases and decreases in the size of Mars. In mythology Mars (under various names) frequently transforms into a dwarf or a giant. Ev Cochrane, in *Martian Metamorphoses* (1997), presents any number of examples from around the world of Mars, or his namesake, changing from a giant to a dwarf, and the reverse. As Mars moved down the plasma stream, it would not only increase tremendously in size, but it would have moved away from its location centered on Saturn. Mars would at first be seen to move to the edge of the disk of Saturn in the direction of the pole star. Mars would then be seen to increase in size, moving past the edge of Saturn in the direction of the Earth's axis of rotation. This would suggest that, as Mars neared

to perhaps within 30 diameters of Earth, it would have been seen in the location of the pole star.

But simply the nearness of Mars, centered on the pole star as it approached Earth gravitationally, would have led to bending the plasma stream connection from Mars to the Earth's magnetic pole. This could have caused the changes in the rosette pattern at Mercury -- an offset of the circle of streams seeming to encircle Mars, making it look as if Mars was placed in a spray of petals radiating from an edge or looking (as I have noted) like a seashell. Mars would have increased in size, but remained in line with the rotational axis of Earth, because it would be gravitationally attracted to Earth.

The continuation of the plasma stream below Mars would normally be of a limited width below Mars, and would extend to the north magnetic pole in the North Atlantic (probably boring a hole in the water vapor dome which would have welled up at that location).

The whole of the bottom section of the plasma stream from Mars would likely be seen as a leg extending down from Mars. The Maya *Chilam Balam* calls this the tongue of Bolon Dzacab (Mars), although the description is associated with the much later appearances of Mars in the 8th and 7th century BC. A stream of plasma extended from below Mars is confirmed from the fact that Mars (under various names) was depicted during the Maya Classical Era with a single leg consisting of the body of a snake (but this may be related only to the 8th and 7th century BC).

This leg is generally held to be a thunderbolt by archaeologists. In the Quiche *Popol Vuh* Mars provides fire for the tribes at a very early time in the narrative. The lower hemisphere of Mars would indeed "be on fire" with the continuous explosions of electric arcs. The "tongue" of Mars (also seen in the central figure of the Aztec Calendar Stone) would be a glow mode plasma which, because it is dispersing and lessening in density as it distances from Mars, would change to an invisible dark mode. [\[note 11\]](#)

Depicting the Past

In Mesopotamia and Egypt, references to these images in the sky abound, but especially verbally in mythology. Egyptian priests felt it their duty not to discard any information, for all of it was considered part of the genealogy of the Gods and, by extension, the genealogy of the kings and pharaohs. The details of

the mythological actions and symbols constitute a welter of confusion for us today. Around the world creation would be recalled as "mythical" histories. That these are actual histories, however, and not imaginative narratives, stands out from the fact that, not only are the same tales told around the world, but all the varied "myths" generate neither the suggestions for exemplary behavior or morals, despite Joseph Campbell's contrary claims -- they are simply descriptive. [\[note 12\]](#)

Both the Mesopotamian and Egyptian textual records of these phenomena (spells and later histories) are sparse and late. Two factors might account for this. First, writing, although initially invented before 3000 BC, only slowly developed from initial commercial uses -- invoices and bills of lading -- to the proclamations of kings and dedications of temples. Narrative use takes an even longer time to develop. The tales and histories that we so urgently want to hear were not considered fit material for letters and scripts.

Second is the fact that common experiences are never (or seldom) recorded at the time they occur. Histories are written after the fact -- when things have changed or when the need exists to justify the present in terms of the past. This often has to wait 300 to 1000 years. [\[note 13\]](#)

In both Egypt and Mesopotamia, images of the polar configuration of the "Era of the Gods" (4077 to 3147 BC) do not show up until the cosmic display has disappeared from view. In Egypt the images show up almost immediately, with a lag of perhaps only a few decades. In Mesopotamia it would take longer. In both locations, the imagery remained stable after it first appeared and changes very little over thousands of years. The stability of the iconography is an important indication of the factual basis underlying the depictions. The images were guarded and authenticated, but "created" from divergent recollections, descriptive in noting that it was a giant "person" but with only some of the recalled attributes actually translated to a depiction of the God.

In Mesoamerica, there existed a tradition of recording actual history pictorially in bark books. We do not know how much of these histories were recorded contemporaneously with the events, and how much was based on later recollections. Some of the recorded events, from the few curious references we have, may have dated back to 40,000 BC, and certainly to 10,900 BC. Events are described which match what we know from other sources -- primarily archaeological and primarily from the Eastern Mediterranean. The books existed, and were quoted and referenced as late as the 16th century AD. (For

which see the chapters "The books of the Chilam Balam," "The Olmec Record," and "The Popol Vuh.")

The attitude which required the recording of events in Mesoamerica, when nothing of the sort was ever accomplished (as far as we know) in the Eastern Mediterranean, might be due to a grammar heavily dependent on action verbs, where whatever was accomplished required a protagonist, an actor who completed the action. As I will show in later chapters, the result is a set of data much more extensive than anywhere else in the world, which can be collated to what we know of events worldwide archaeologically, or which can be inferred from other sources.

In the era after 3147 BC we are dealing with attempts to graphically depict many differing recollections, all of which were true at one time or another and had become fixed in the imagination, even though the original forms may have changed in appearance over time. I find it reasonable to assume that once an abstract image is given a familiar identification, in terms of "it looks like ...," it would remain the same, even when the original changed considerably.

Unlike the European representations, which continued to hold the image in the sky as a female figure or a house, in Egypt and Mesopotamia the interpretation of Saturn and the plasma stream was of a person, a supreme being -- which in Egypt was assumed to be the pharaoh. It is a head seen in profile, to which the puffy beard is added (as in Mesopotamia also). Intermittent aspects of the plasma stream, some of the discontinuities noted by Peratt, become the magical or fetish symbols of the pharaoh -- the Ankh, Djed Pillar, and the Was Scepter. In Egypt everything was retained and assigned a purpose in a plan where the pharaoh now is the God that was.

In Mesopotamian depictions the tree to heaven, complete with a globe at the top, is placed on seals next to the very human-looking image of the God, who is seated on a throne. On the other side, facing both the tree and the God is the king, the caretaker of the God's fields. The tree and globe, which originally was the God, is now a separate form shown next to the throne of God.

In Mesopotamia the God is seated. To have the God seated on a throne, rather than standing, probably is a reference to the fact that the celestial image was fixed in space. God did not walk around the heavens. In many seals God holds in his hand a device, the shen, which also shows up in Egypt both as a magical object and in outline as the form used to write the names of pharaohs or deities - the cartouche.

In Mesopotamia, the seated person is actually the next God to take over rulership of the world, after 3147 BC -- Jupiter. He is clearly identified by his twisted turban headdress and his full-length robe. In one seal there is an adjacent star, surrounded with 9 smaller globes, the readily visible satellites of Jupiter. In some representations Jupiter is seated on a symbol for "temple" which in turn is set on a layer of bricks. The God is thus now assigned to a specific location on Earth, his home and temple.



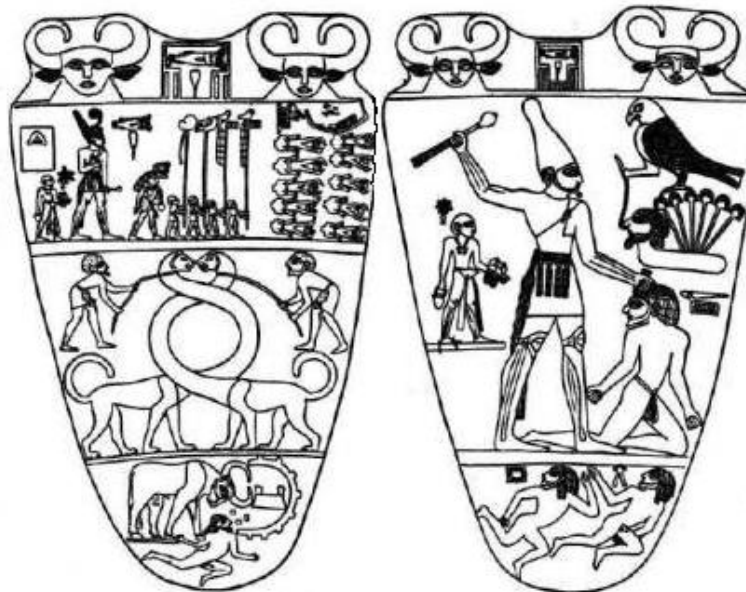
*[Image: Jupiter on his throne; Hammurabi speaks to God.
Image after circa 1700 BC. After printablecolouringpages.co.uk.]*

He is wearing a long garment representing the massive mountain/skirt outpouring of plasma at the south pole. The rays shown at his shoulder are the much smaller plasma plumes extending from the north pole. (The magnetic poles of Jupiter are reversed from what is encountered for other planets. More on this in a following chapter.) The device held by the God, called a "shen" in Egypt, represents a horizontal plasma outpouring from the south pole of Jupiter during the time spent in the asteroid belt.

In Egypt, where the pharaoh is held to be the God, he stands and is seen in profile. The pharaoh also wears a fluffy beard, and later sports the cobra form of Venus (originally connected to Saturn with a stream of plasma in glow mode) on the headband to his striped "nemes head covering." This last item may be equivalent to the projecting rays at the shoulder of God in Mesopotamia, or it

may represent the mountain of Jupiter which disappeared at the beginning of the second dynasty. The nemes head cover first shows up in the first dynasty.

On the Egyptian dedicatory "Cosmetic Palette of Narmer" (dated to 3050 BC), the king (who is the God) wields a club to smite his enemies, even though short swords had long been in use in Egypt. The club is Venus and its plasma tail. The unfortunate enemy is the already disappeared Uranus, grabbed by his long hair.



[Image: Palette of Narmer, circa 3050 BC. This is a dedicatory cosmetic palette found buried beneath the floor of the temple of the Falcon at Heirakonpolis (Nekhen) in Upper Egypt. The front side is shown on the left. This was at one time thought to represent the unification of predynastic Egypt, since the pharaoh wears the Red Crown of Lower Egypt on the obverse (left) and the White Crown of Upper Egypt on the reverse. After Francesco Raffaele.]

King Narmer of the "Narmer Palette" (with the proper name of "Catfish Drill") also wears a long fluffy tail (held to be a bull's tail by Egyptologists) from his belt, reaching to his ankles, which is a depiction of the plasma outflow from Saturn in glow mode, but could also signify that Jupiter shows up in 3147 BC as a bull which wrecks the home of the Gods (which is shown on the Palette, by the way). The "Palette of Narmer" which shows the pharaoh with captured enemies, is already almost unreadable in the density of its symbols. Only the fact that the symbols will stay the same for the next 3000 years has allowed us to read some of them.

The Gifts of the Gods

During the "Era of the Gods" mankind was given many gifts. Writing was universally held to have been taught by the Gods, not only in the Near East but also in China. As I have mentioned, for the Egyptians, the changing shape of the column above the North Polar region became the model for many hieroglyphic signs, with some signs used on pottery predating 3000 BC.

Humans similarly insisted that agricultural practices were shown to them by the Gods. The "canals" seen crossing Paradise became the model for the irrigation canals constructed in Mesopotamia. Even though irrigation canals probably predated the design of the Gods, the concept was attributed to them. The column which rose from the North Atlantic was seen as a river flowing from Paradise, and the Nile, Euphrates, Tigris, Indus, and Sarasvati were understood to be extensions of this river. The bright anode tufts on the Saturnian surface are seen as golden grain waving in the wind. Four thousand years later, the Incas mold gold into stalks of maize to stand before the temples of their Emperor God.

In Mesopotamia, and elsewhere, humans tended the fields and flocks of the Gods believing that they were the slaves of the Gods, as even the late (1700 BC) Babylonian creation myth of the *Enuma Elish* recounts. Kingships of the next age were understood as stewardships in the service of the Gods.

Worship was performed as directed by the Gods. It included music, dance, and gifts of food to the Gods, and a decor derived from the colorful displays in the sky. Modeled on the battles in the sky seen in 3147 BC, worship also involved human sacrifice almost everywhere. [\[note 14\]](#)

The architecture of mastabas and the temple-enclosure walls of Egypt and Mesopotamia were modeled after the buttressed wall seen erected by the Gods (the cloudbank seen at the northwest horizon). Later pyramids and temples faced north to receive the God (the visits of Mars), but all the early mastaba graves faced the strike point of the plasma arc in the northwest. [\[note 15\]](#)

The early civilizations took the events in the sky not only as mandates for their activities, but also as the analog for all heroic and religious narratives, from the *Epic of Gilgamesh* to the Egyptian, Near Eastern, Celtic, and Christian resurrection theologies of later antiquity. The "history" of the lives of the Gods became the model for storytelling which runs from Sumerian epics through

Greek mythology, on through the medieval Arthurian cycles and later fairy tales, and into the present. [\[note 16\]](#)

Living in Paradise

In summary, for a thousand years during the "Era of the Gods," from 4077 BC to 3147 BC, it was Paradise on Earth. The climate in the Middle East was mild and wet. With Earth in an orbit **below** Saturn, the Sun would not have been at the center of the orbit. The northern hemisphere would have faced the Sun year-round, and there would not have been the drastic changes in seasons we experience today. Mankind lived in harmony with the Gods, who supplied the techniques of agricultural cultivation, the plans for cities and temples, and the knowledge of the wheel, writing, and music. And for a thousand years the images in the sky provided a spectacular show.

The interplanetary plasma flow must also have built up an enormous amount of static electric charge in the upper atmosphere, to the point where mountain peaks would have been under continuous lightning strikes. And in addition to the electrostatic charge of the atmosphere, mankind was subjected for a thousand years to a varying magnetic field, a by-product of the rotating Birkeland current. If this arcing was even occasionally of the right amplitude and frequency, this could have had a long-term beneficial effect on the psyches of the humans. I have long suspected some such secondary results from an arc discharge. Research at Harvard's McLean Psychiatric Research Hospital has demonstrated the effects of an oscillating low-level magnetic field. To quote from a patent application, the use of a localized magnetic field is indicated for subjects with symptoms of "anxiety, moodiness, depression, lethargy, sleepiness, learning difficulties, and memory impairments." [\[note 17\]](#)

Imagine then, humans -- content, cheerful, outgoing, energetic, alert, intelligent, and enjoying a mild climate, living with the Gods, quick to learn, inventing everything from the wheel to writing, forming egalitarian groups to build massive irrigation projects in a desert wasteland, engaging in the manufacture of ceramics and metals, and trading these far and wide. It must have been a millennium of optimism which supported each and every effort. This certainly was the "Era of the Gods."

But then, after a thousand years, the same Gods decided that the humans were too loud, and that they would shut off the electricity and drown them all. That happens in 3147 BC.

Endnotes

Note 1 --

Ancient sources list seven "companions" of Saturn. Nine satellites could be counted if the very small satellites and those on very close orbits are neglected. The nine were all discovered before the twentieth century by telescope. However, two of the nine satellites, Iapetus and Phoebe, are on extremely distant and irregular orbits (3,561,300 km and 12,952,000 km). That leaves some seven satellites which are easily seen, and could be understood as "companions." The God of the Bible is also accompanied by seven archangels.

As recounted in de Santillana and von Dechend's *Hamlet's Mill*, according to Norse mythology, as well as Indian and many other sources, seven women operated the mill (Hamlet's Mill) of remote antiquity. Venus, connected yet with a plasma stream to Saturn, would have represented the handle of the mill, with the plasma column as the shaft. The mill stones would be located in the sea where large clouds of grist bellowed up.

The current seven large satellites of Saturn, plus the additional two, and their radiuses and orbits, are as follows:

Moon #	Radius (km)	Mass (kg)	Distance (km)	Discoverer	Date
Titan VI	2,575	1.35e+23	1,221,850	C. Huygens	1655
Rhea V	765	2.49e+21	527,040	G. Cassini	1672
Tethys III	530	7.55e+20	294,660	G. Cassini	1684
Dione IV	560	1.05e+21	377,400	G. Cassini	1684
Enceladus II	250	8.40e+19	238,020	W. Herschel	1789
Mimas I	196	3.80e+19	185,520	W. Herschel	1789
Hyperion	205x130x110	1.77e+19	1,481,000	W. Bond	1848
.....					
Iapetus VIII	730	1.88e+21	3,561,300	G. Cassini	1671
Phoebe IX	110	4.00e+18	12,952,000	W. Pickering	1898
"e+n" denotes 10 exp n					

The seven satellites known as the "Companions of Osiris" guarded Osiris's coffin. Four of them, perhaps the four large satellites (Tethys, Dione, Rhea, Iapetus, but not the giant Titan), remain as the "Sons of Osiris" (originally the

"Helpers of the King") in funeral practices. They are shown as seated mummy forms, often seated on a lotus blossom (the rings of Saturn), and they guard the four canopic jars containing the viscera of the body.

It is also likely, however, that the guardians of the four canopic jars are represented by the four large satellites of Jupiter.

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Note 2 --

Many of the Gods, especially the initial Gods, are born as twins, identified as brother and sister, who then marry to generate children, frequently in groups of seven or nine. Some Gods also come into being as deifications of the elements of the celestial display. The Gods Nut and Geb are today identified by catastrophists as the upper and lower rings of Saturn, although they more likely belong in the far south as part of the southern ball plasmoids of 10,900 BC through 8347 BC.

William Mullen, in 1994, suggested that Isis and Nephtys (her helpful sister) were originally assigned to the two outer satellites of Saturn, Iapetus and Phoebe. But in terms of size, Venus and Titan are more likely candidates.

Neith was also identified with Venus by Plato. But Neith is most likely a manifestation of the southern polar plasmoid. She is known in the West Saharan nome as a snake, a weaver, and an archer. The crossed arrows which are one of her symbols probably represent the electron beams. The goddess was known throughout the Sahara in remote antiquity.

Thirty-three telescopic observations were made of what looked like a moon of Venus by fifteen reputable astronomers between AD 1672 and AD 1761. The object looked like a moon because it showed the same phases as Venus, and therefore must have been close to Venus. Movement was noticed and some calculations were made of its period (11 or 12 days), size (one quarter the diameter of Venus), distance from Venus, and orbital inclination and eccentricity (0.195). It has not been seen since, except for once more in 1892, by Edward Barnard of Lick Observatory, who had set out to prove that there was no companion satellite to Venus. Space age exploration has found nothing. From Patrick Moore, *Venus* (2002).

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Note 3 --

Egyptian river commerce depended on the current to move north, and on prevailing winds to move south. The large oars depicted in images of Egyptian ships are for steering.

David Talbott, in "The Ship of Heaven" *Aeon* (1988), describes aspects of the ship from Egyptian sources, both from early iconography and from later depictions and descriptions where the original elements are kept alive, but are confused. He also points to other descriptions of the ships of the gods worldwide, excepting only Mesoamerica. I think some of the descriptions would better fit a later model -- where the Gods move along the edge of the Absu of the southern sky rather than being towed around the edge of Saturn.

David Talbott writes:

"According to the model, the apparition began to grow bright as the crescent descended to the left of Saturn; reached its point of greatest splendor when the crescent was directly below Saturn; began to diminish as the crescent rose to the right; and was its weakest when the crescent was directly over Saturn. This daily cycle, I have claimed, is reflected in all ancient symbolism of the Saturnian 'day' and 'night.'"

The direction is correct for Earth revolving to the east and below Saturn. The stars at the pole move in the same direction: down on the left, to the right at the bottom, and up at the right of the pole. Saturn's daily rotation involves the same path.

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Note 4 --

These Bronze Age images probably represent Jupiter as the Midnight Sun at a much later date. The image created in this instance would be almost identical to the earlier Egyptian images of a globe resting on a crescent. The location in the skies would be different. See later texts.

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Note 5 --

The home of the Gods moves from an "upper land" to a mountain after 3147 BC. This mountain, seen by the ancients, at first was the plasma outpouring from below Jupiter, which probably only lasted 287 years. It was replaced early by a plasma mountain formed by Mars on close passes above Earth at thirty year

intervals which lasted for maybe 300 years after 3070 BC. The mountain of Mars was seen in the north. Jupiter appeared on the ecliptic instead. Much later, from about 2527 to 2438 BC and again from 2349 to 2150 BC, the mountain of Jupiter returned as the plasma expulsion from its north magnetic pole, located at the south geographical pole. More on this in later chapters.

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Note 6 --

The form of a star within a crescent also appears whenever bright planets (Jupiter or Venus) dip behind the obscuring Absu in their travels along the ecliptic. See the chapter "Hezekiah and Babylon" where Babylonian records after 685 BC are discussed.

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Note 7 --

Venus is the uraeus (the rearing cobra form) used with the crown or headdress of the pharaoh. From this image (which is already in use in 3000 BC), and some other considerations, I would suggest that the revolution of Venus might have been synchronous with the rotation of Earth (and Saturn), so that, as seen from Earth, Venus was always seen as placed to the left and "above" Saturn. If the uraeus then ends up being used at the front of the pharaoh's headdress, then the Egyptians may have conceived of Saturn as a "head in the sky" seen in profile, facing to his left. It is possible that this underlies the consistent depiction of Egyptian sacred figures in profile. However, the Egyptian iconography of flat images (discussed in a previous chapter) may have nothing to do with this. Even the earliest images of the pharaoh "smiting his enemies" have the figure facing (or moving) to his left.

Talbott has identified the uraeus and the sidelock of hair (seen worldwide on young boys) as a feature of plasma streams impinging on Mars and extending toward Earth from below Mars. These forms were likely composed of ionized Martian dust. At a much later date, the same extension of ionized Martian dust into nearby space probably resulting in descriptions in Mesoamerica of Mars as a bat.

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Note 8 --

The idea of a person (man or god) standing at the north horizon is very strong and occurs in many mythologies. "With the face of a mirror" reads one Mesoamerican description. With distance from the initial event, and for people less inclined to make a big fuss over the images in the sky, this giant man becomes the first man to have been created, as Adam ("man") of the Hebrews, and Manu ("man") of the Hindus. Titus Flavius Josephus, the first century AD Roman Jewish historian, in *The Antiquity of the Jews* (AD 93), notes, "*This [first] man was called Adam, which in the Hebrew tongue signifies one that is red, because he was formed out of red earth, compounded together.*" That might point to Mars rather than Saturn. However, the life span and death of this celestial Adam point to a birth in 4077 BC (3147 BC - 930 BC), close to my earlier estimate of 4100 BC, as the start of the initial blazing of Saturn.

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Note 9 --

The Absu extended as a set of inclined bands in the southern sky below the equatorial. The equatorial is an imaginary extension of the Earth's equator into the sky, from directly east to directly west, but set at an angle above the south horizon equal to the complement of the latitude on Earth from which it is seen (the latitude subtracted from 90 degrees). Thus at 30 degrees latitude (Mesopotamia and Egypt) the equatorial is placed 60 degrees up from the southern horizon. The celestial ocean, the Absu, stood up somewhat short of 50 degrees (which was estimated in an earlier chapter).

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Note 10 --



[Olympus Mons and seven other blisters. After NASA.]

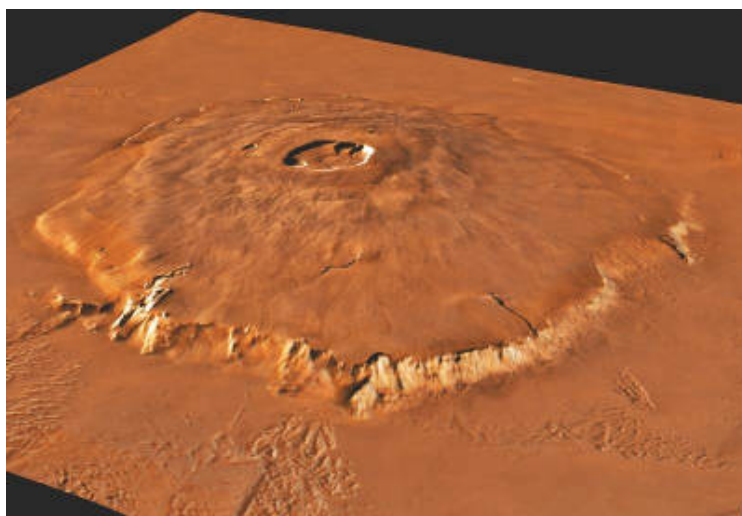
"The most curious aspect of the map [of Mars] is the striking difference between the planet's low, smooth northern hemisphere and the heavily cratered southern hemisphere, which sits, on average, about three miles (five kilometers) higher than the north." -- GSFC/NASA

It could be suggested that the northern hemisphere was entirely removed due to an even larger plasma contact -- simply machined away. But this is unlikely. The lower altitude of the northern hemisphere is of greater density than the lower hemisphere (thus maintaining a planetary balance). It also suggests the past existence of an ocean which might have been entirely removed with electric arcing. There are clear strand lines of two northern oceans, one contained within the confines of the other.

It might then be suggested that the arcing of the northern ocean was the display in the skies seen by humans in the Upper Paleolithic, say 30,000 years ago, and recorded as the "cup and tail" petroglyphs (as mentioned in a previous chapter). It would mean that Mars would have been close to Saturn. And it also suggests that Mars has been a "dead" planet for a very long time.

Shown below is Olympus Mons. The caldera of Olympus Mons is 40 miles (65 km) in diameter, an area of 1200 square miles -- large enough to contain the cities of Chicago, NY city, and LA -- but shows no lava flow. It has the shape of a pancake, and is three times the height of Mount Everest. This would have been

a strike of an absolutely astounding magnitude. As noted by Thornhill, the poles also look like massive plasma strike areas.

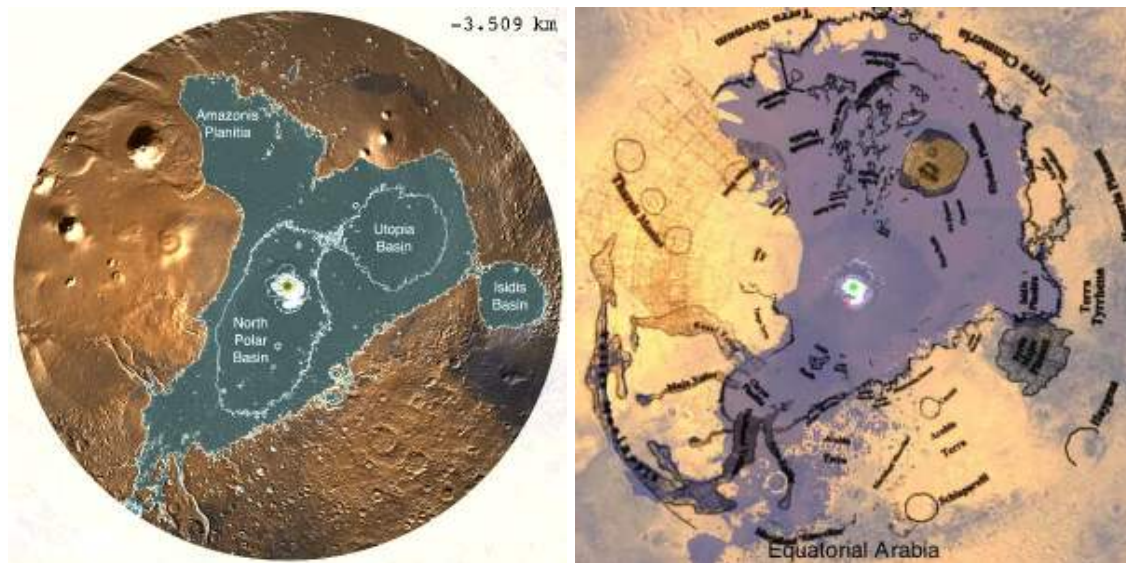


[*Olympus Mons. After NASA.*]

Ralph Juergens in "Of the Moon and Mars, part II (*Pensee Journal* II, 1974) wrote:

"A study of Mariner 9's overhead shot of Nix Olympica suggests that the summit crater on this vast pile is indeed the result of one pit having been superimposed on another, the process repeated at least five times. But the sequence seems to run from larger to successively smaller pits in at least the first three stages, and in every case the later pits appear to be centered on rims of earlier pits. Such a seeming preference of later craters for high points on the rims of earlier ones is strongly suggestive of electrical activity."

What is of interest here is the fact that there were apparently five reignitions of an arc at this location. Other Mons also show repeated ignitions.



[Mars, larger northern ocean. Courtesy of Richard Smith.]

Richard M. Smith, in "The Mars Ocean Project" (Internet, 2009) at <http://mysite.verizon.net/rickmsmith/MarsOceanProject.html>, writes:

"In 1989, Timothy Parker and colleagues at the Jet Propulsion Laboratory began analyzing the topography of Mars's northern lowlands for evidence of shorelines that would indicate the existence of ancient oceans."

*"In 2001 Parker and [Stephen] Clifford published a paper that delineated their findings in a map showing the locations of several proposed shorelines. ["The Evolution of the Martian Hydrosphere" *Icarus* (2001)]"*

*"Later, in 2003, [Michael] Carr and [James] Head reported their opinion that more compelling evidence for ancient large bodies of water were to be found in the deposits on the northern plains." ["Oceans on Mars" *Journal of Geophysical Research* (2003)]"*

Smith set out to investigate the graphical equivalent of an ocean sustained on Mars in the past -- actually two oceans, called Arabia and Deuteronilus. The larger Arabia includes the smaller (and lower) Deuteronilus. These are shown above for one instance of some variable parameters, such as the oblateness of Mars due to the additional amount of water.

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Note 11 --

That the lower plasma stream would follow the Earth's magnetic field lines is certain. But as Mars approached closer it would have centered on the (location of) the pole star, maintaining a path directly aimed at Earth, attracted, as I have pointed out, simply by gravity.

The suggestion from Book 10 of the *Chilam Balam* is that Mars disappeared behind the plasma (or vapor) dome in the north. It reads that Mars "pierced the back" of the mountain or the "foundation stone." This would be correct from the longitude of Central America if the plasma contact with Earth (at that time or at one time) was in Hudson Bay. But the reading could also suggest that visually Mars was seen adjacent to the cloud bank in the North Atlantic.

The *Chilam Balam* also notes that (presumably) Mars "warmed well" the base or pedestal -- apparently the vapor dome in the North Atlantic. This also suggests arcing from the lower hemisphere of Mars.

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Note 12 --

"That conservatism so noticeable in Egyptian art is even more emphasized in matters of religion; elements which had once been admitted into the canon continued side by side with later innovations, even though they were logically superfluous and sometimes irreconcilable."

-- I.E.S. Edwards *The Pyramids of Egypt* (1972).

The conservatism arises from the conviction of the experience of a thousand years of the "Era of the Gods," and some of the strange and diverse elements in Egyptian religion probably have their genesis in the need to account for the objects in the sky in the previous era from 10,900 BC through 8347 BC. These earlier impressions cannot be neglected, despite the intervening 1000 years of the "Era of the Gods." Note that the well-established iconography of 3050 BC is retained for the next 3000 years.

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Note 13 --

Egypt did not produce narratives until very late, apparently during the Middle Kingdom (2050 -- 1492 BC). The first we hear of the Egyptian story of Isis and Osiris is when it is told by a Greek in the first century AD.

Sumer and Akkad produced a literature, with the earliest copies dating from 2300 and 2400 BC, although frequently attributed to much earlier dates. Most date from after 2000 BC. The narratives have little sense of the linear historical perspective that we would require. As in Egypt, only the past mattered, and of the past, only the beginning. However, Sumer kept extensive records of commercial transactions and contracts, from much earlier times.

In China the earliest documents are very late recollections. The *Annals of Shu* is a collection of disconnected records from 2300 BC to 600 BC, collated after 500 BC, destroyed in 213 BC, and recovered some 50 years later. This was during the Chou dynasty, 1027 to 221 BC, which had in effect removed all iconography of the religions associated with the agricultural tribes they conquered, and the Chin dynasty, which purged China of nearly all books in 213 BC.

Some of the religious notions curbed by the Chou were reintroduced by the humanist and realist philosophers of the Confucianists (Confucius, 551-479 BC) and contemporaneous Taoists (Lao-tse, 604-531 BC), but the texts were edited to serve the imperial aristocracy. This was an era of classical philosophical development, and we see efforts to tame and explain the world in terms of basic forces in nature (such as the Yin / Yang) and material elements, not unlike the efforts of the contemporaneous Greeks to displace the Olympian Gods with rational thought. This had an impact on the Chinese records that were forwarded to us, for they have been cleaned up and emptied of mythical and legendary elements. Only "heaven" is retained, and heaven is not the home of a god or spirit so much as it is a source of authority.

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Note 14 --

"For practically every known rite -- and there are thousands of them -- you can find a natural match in mythology, and in every instance the person who performs the ritual corresponds to one of the actors in the myth, be it the main divinity himself or another one. It is, therefore, justifiable to say that the persons who enact the rituals temporarily become the gods -- in their own imagination -- for the duration of the ritual. The myth and the ritual together form a sort of microcosm that exists outside the ordinary world, but takes place in "illo tempore" exclusively."

"An interesting sidenote is that this insight vindicates the age-old traditional explanation of the origin of the rituals. ... The most sacred rites were worldwide believed to have been instituted by the gods themselves."

Here the tradition explicitly connects the myth and the ritual. According to the myth the god performed the sacred act for the first time, so that the myth actually describes the ritual. Conversely, by performing the same sacred act the celebrant repeats what the god allegedly did first, so that the deity automatically becomes the legendary founder of the ritual. The process of transfiguration and the exemplary nature of the myths are here seen to culminate in the significance of the ritual imitation of the myths."

-- Marinus van der Sluijs at [\[http://www.mythopedia.info\]](http://www.mythopedia.info)
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Note 15 --

The earliest Egyptian mastabas and the first pyramids are oriented towards the northwest. Only with the first "true" pyramids is the alignment changed to north-south. As time goes on temples also are aligned more frequently to the north, but often determined more by the landscape than the old sacred traditions.

The earlier megalithic constructions in Ireland, England, and France generally have their major axis pointing west by northwest. Only in the Bronze Age do graves and constructions in Europe start to point to the North Pole.

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Note 16 --

You will recognize obvious elements in "Jack and the Bean Stalk" and also in many other fairy tales. It might also be suggested that hopscotch diagrams represent the "stairway to heaven" plasma discontinuity. The game is supposedly British and of Roman times, but this only attests to its antiquity. It is in use worldwide. In the USA the numbered squares are surmounted with a circle marked "heaven."

The Roman poet Ovid turned many of the senseless "myths," which often have no resolution in terms of a moral or a lesson, into a narrative form but, despite his best efforts, a sense of closure often escaped him, and the only lesson learned, for example, is that the caprice of youth will lead to being turned into a Laurel tree by an angry Goddess.

[\[return to text\]](#)

Note 17 --

Rohan and Renshaw, *American Journal of Psychiatry* January, 2004. The patent 6,572,528 (applied for April 20, 2001, awarded June 3, 2003), is held by McLean Hospital Corporation, Belmont, MA. The patent speaks of a 1000 Hz (pulse) rate at 5-10 Gauss. Compare this to the Earth's current magnetic field (which does not oscillate) of 0.3-0.6 Gauss.

It would be difficult, however, to imagine a Birkeland current capable of generating a 1000 Hz pulsing field from rotation. The physical dimensions of the arc are too large. The magnetic pulsing would have to be generated by sputtering, or some other by-product of the current, such as a splintering of the arc into discrete streams.

On the other hand, the atmospheric electric charge -- static electricity -- during this time must have been enormous. There are therapeutic effects ascribed to static electricity also.

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Chapter 15: The Era of the Gods.

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This chapter will give further details of the "Era of the Gods." I will suggest some dates, discuss megalithic sites in Europe, and describe the flood of 3147 BC -- when the Gods left.

I will be using 3147 BC, as the "end" of the "Era of the Gods." This date is a correction of 3114 BC, the retrocalculated Maya "year zero," which is the start of the second Mesoamerican calendar round -- as understood by us and, in fact, by the Maya of the Classical era (AD 400 to 900). Any number of catastrophists have used the convenient date of 3114 BC, without looking into how correct this might be.

The correction to 3147 BC is based on the institution of the Long Count by the Olmecs in 747 BC, and is detailed in the chapter "The Maya Calendar." The date of 3147 BC is probably much more correct than 3114 BC, although both dates generally match later chronologies, archaeological findings, and climatological information. The date also matches a massive setback in Middle Eastern civilization. The setback was caused by a catastrophe which will be recounted 800 years later in the *Epic of Gilgamesh* as "The flood" and retold much later yet in the Bible as "the flood of Noah." Bible chronologists, however, will place the flood (the flood of Noah) in 2349 BC. [\[note 1\]](#)

The King List

The "Era of the Gods" ends in 3147 BC with the flood of Gilgamesh -- which is my name for the flood at the end of the era of the Gods. Two questions are, How long did the Gods rule, and, When did this era begin?

The beginning date of the "Era of the Gods" can be derived from the Sumerian *King List*. Additionally, the span of time the "egg" stood in the sky, before creation, can be found from some variations of the *King List* and both can be partially verified against later Egyptian records. From climatological data we can even determine when the "chaos before creation" started. All of these bear up under archaeological evidence.

I will use the Sumerian *King List* because it provides actual year tallies. The Sumerians and people of Mesopotamia had been keeping extensive records of farm products since 8500 BC. Among the tallies and records which were kept, was a summary list of the names and lengths of reigns of kings, along with the names of the cities they ruled.

The Sumerian *King List* is a text extant from remote antiquity. It was frequently recopied and seems to have had canonical status among the people of Mesopotamia. It was even used by the Bible editors after 600 BC as a record of the world since Creation. It lists 8 "kings before the flood" and then a long list of "kings after the flood," the first 23 at the city of Kish of Sumer, followed by hundreds more at other cities.

The first of the 8 kings before the flood and the first king after the flood both "descend from heaven." It is the flood which separates our era from the "Era of the Gods." The *King List* simply ends the period of the kings before the flood with:

"And then the flood swept over."

The earliest extant copies of the *King List* date from 2300 or 2200 BC, apparently transcribed from records of circa 2800 BC. There are variations among the 18 extant copies, but it is possible to suggest an earlier master copy and to reconstruct it. Accurate copies were known even in Classical times, long after the lands of Sumer and Akkad had been completely forgotten. While the length of the reigns of some individual kings varies among copies, the total length of all the reigns at individual cities always remains the same. [\[note 2\]](#)

The Sumerian *King List* is often held to be nothing more than political promotion and the large number of "years" for the reigns of the earliest kings, as extravagant bragging in the service of some regime. But if we recognize that the first kings are not human kings but represent celestial beings -- Saturn at first, and later the planet Mars which approaches Earth at regular intervals -- then the beginning portion of the *King List* will start to make sense.

The early kings, and especially the "kings before the flood," rule for impossibly long times -- reigns lasting up to 43,000 years. However, the word that is translated by us as "year" actually means "turn" or "shuttle," as in weaving. It also means "rotation" and came to mean year (as in a "rotation in seasons") as well as a change in government.

The number of "turns" of the "kings before the flood" are all given as whole thousands, making it look suspiciously like they were made up. But, in fact, it seems that the "turns" represent days, likely retrocalculated from years. If the list was transcribed from other records after 3100 BC, the chroniclers must have been aware that the length of the year had changed and attempted to preserve accuracy by using days (turns) rather than years. Additionally, it should be noted that invoices and manifests in Mesopotamia always used the smallest units in recording transactions. Dividing all the numbers by 225 (what I will assume to be the number of days in the year before 3147 BC) makes all the "turns" into whole numbered years and reduces the total time span of the 8 kings from 241,200 "years" to 1072 years. [\[note 3\]](#)

The *King List* notes that Meskiaggasher, the first king (and founder) of the city of Uruk "was the first to write on clay." Meskiaggasher is dated to 2720 or 2740 BC and is the 24th king "after the flood." The "writing on clay" was actually well established much earlier in Northern Mesopotamia, yet for Sumer the credit went to the founder of Uruk. The previous 23 kings had held sway over the city of Kish, north of Uruk. Kish was the center of Sumerian politics for some 300 years.

In about 2700 Gilgamesh, the 5th king of Uruk and the literary figure at the center of the *Epic of Gilgamesh*, defies the king of Kish, and the center of Sumerian politics shifts to Uruk. It was at this time that the *King List* was probably first transcribed from older tallies and records. We probably owe the compilation of the *King List*, which was continued for hundreds of years into the future, to this gesture of independence by Gilgamesh. Independence of the individual cities became the political philosophy and practice of Sumer. [\[note 4\]](#)

With respect to accepting the validity of the *King List*, I think we need to overcome our chauvinism and not assume factual inaccuracy simply because these people precede us by 5000 years. They were not cavemen. The Sumerians showed amazing abilities -- agricultural production, the building and maintenance of massive irrigation projects, the manufacture of goods,

widespread conduct of trade, and the ability to keep track of products numbering into the tens of thousands of units.

The tallies of farm products which date back to 8500 BC were initially represented with clay tokens. The use of the token system was extended to many differing trade goods -- barley, beer, cattle, sheep, wicker, cloth, and building materials. Representations of 10 and 100, plus 60, 600, and 3600 were in use. The far-flung trade of Sumer ranged from the Indus valley to the seacoast of the Levant, and, before 3000 BC, to Egypt. There are surviving temple records of trade accounts from 4000 BC. [\[note 5\]](#)

Dating the Age of the Gods

Together the eight "kings before the flood" account for 1072 years. Subtracting this from an ending date of 3147 BC, the "Era of the Gods" started in 4219 BC, a date I later corrected to 4077 BC. The "eight kings" seem to be the appearances of Mars, mentioned previously. Their "rulership" is established because Mars is seen descending from heaven. A version of the *King List* is listed below:

- "When kingship descended from heaven, the kingship was in Eridu.*
- *In Eridu Alulim became king; he ruled for 28,800 turns. Alaljar ruled for 36,000 turns. Eridu was abandoned.*
- *Kingship was taken to Bad-tibira. Ammilu'anna the king ruled 43,200 turns. Enmegallanna ruled 28,800 turns. Dumuzi the shepherd ruled 36,000 turns. Bad-tibira was abandoned.*
- *Kingship was taken to Larak. En-sipa-zi-anna ruled 28,800 turns. Larak was abandoned.*
- *Kingship was taken to Sippar. Meduranki ruled 21,000 turns. Sippar was abandoned.*
- *Kingship was taken to Shuruppak. Ubur-tutu ruled 18,600 turns.*
- *Total: 8 kings, their turns: 241,200*
- *Then the flood swept over."*

-- MS in Sumerian on clay, 2000-1800 BC

With "turns" representing days in the *King List*, the 8 kings ruled at 128 to 192 year intervals. The reigns have a repetitive regularity. Mars probably descended slowly at 120 to 190 year intervals. Because plasma flows tend to be self-limiting, and thus represent nearly identical flows of current over long periods

of time, it is likely that the descent of Mars was very regular. A long interval also fits with the long time spans between the building and use of grave barrows (and henges) in Western Europe (see below). The identification of five different cities probably implies that the strike point of the arc was interrupted and restarted in a new location periodically. [\[note 6\]](#)

The identities and locations of the "cities" mentioned above, in the quoted *King List*, are very uncertain. Based on linguistic rather than archaeological evidence, it would seem that Eridu (the first city of the *King List*) is thought to be Uruk or is located in the south, Sippar (the fourth city) is thought to be Nippur, and Shuruppak (the fifth city) might be located near Fara. (The "Sumerian Noah" of the *Epic of Gilgamesh* is from Shuruppak -- "the City of the Ship.") But linguists and archaeologists work from slim evidence, and I suspect, as others do also, that Eridu is not Uruk. Uruk was not founded until 350 years after the flood of 3147 BC. The last two cities have not been identified at all. It is suspected by some that they may be under the coastal waters of the Persian Gulf. Although Eridu tends to be thought of as real, many archaeologists hold that none of the cities have been identified.

When the *King List* was being compiled (after 3147 BC), there had been walled cities in Sumer for perhaps a thousand years and the cloud or plasma formation at the north horizon was thus recognized as a walled city. This was probably the formation and disappearance of the cup-shaped "mountain" at the base of the plasma stream near Earth, caused by instabilities in the plasma stream from Saturn (as could happen with changes in the separation of the planets). To the Sumerian chroniclers, compiling the records of the past, the equivalent of what had been seen at the north horizon was the existence of cities, kings, and changes in kingship. [\[note 7\]](#)

When The Egg Appeared

Now we take another step back in time. At the very beginning of some versions of the *King List*, and preceding the eight "kings before the flood," is Alorus, a king who does not descend to Earth but rules in heaven for an inordinately long time -- 162,000 "turns." Assuming again that a turn is a single day and using a year of 225 days, Alorus would have ruled 720 solar years. The reign of Alorus in Heaven must represent the condition before the "creation event," for there is no mention of his descent to Earth, whereas the next king is preceded with the phrase "When kingship descended from heaven ..." Alorus must represent the time when the egg stood in the sky, and presumably before Saturn lit up and

Mars started periodic descents. For a long time nothing happened -- 720 solar years (representing 443 of our current years). [\[note 8\]](#)

Subtracting 720 years from 4219 BC we arrive at 4939 BC as the first appearance of Saturn as an egg in the clouded sky. (Or, subtracting 720 years from 4077 BC, the result is 4797 BC.) I had suggested in the previous chapter, based on climatic data, that Earth originally arrived at a location below Saturn at circa 5800 BC. This is not correct, since Earth had been below Saturn since 10,900 BC. The cloud cover of the Younger Dryas may account for the lag in climate.

But we now make the additional suggestion that Saturn remained indistinct until 4077 BC -- shrouded in turbulent clouds or what looked like a sea of swirling water. In 4077 BC Saturn went nova, and all the surrounding glow mode plasma disappeared.

Thus we have the following sequence:

- Arrival of Earth below Saturn, circa 5800 BC.
- First visibility of Saturn as an egg in 4939 BC (4797 BC).
- Saturn goes nova -- the egg opens -- in 4219 BC (4077 BC).
- The end of the "Era of the Gods" in 3147 BC.

[\[note 9\]](#)

The details of the sequence of events when Saturn went nova were given in the previous chapter. Note again that, as far as the humans are concerned, it is the nova event that determines "creation." There was no thought of the creation of humans or of anything dealing with Middle Earth. The only concern was to mark the creation of heaven and the self-creation of the Gods.

Barrows in Western Europe

The Egyptians and Mesopotamians, who were eventually to build gigantic stone and brick monuments, left nothing but a few postholes and wall foundations from the "Era of the Gods." It is in Western Europe, from Portugal to Sweden, that people start a frenzy of building very large grave mounds, called Long Barrows, followed by hollow megalithic mounds, called Passage Graves, and later yet open circular megalithic structures, called henges, during and after the "Era of the Gods." [\[note 10\]](#)

The Long Barrows are 100 to 200 feet (30 to 70 meters) long and half as wide, made at times with standing stones, often 8 to 10 feet (3 meters) tall and capped with stone slabs weighing up to 40 tons. These are covered with packed earth to form a large mound, often much larger than the internal space. The barrows have long passages in the interior with a single terminal chamber at the end. But not all Long Barrows do. Some, like West Kennet Long Barrow, are composed almost entirely of a mound of dirt, with very little dedicated as an enclosed burial space. The Long Barrows tend to be older, by thousands of years, than other structures, called Passage Graves.

The Long Barrows date from 4000 BC through about 3400 BC. There can be little question that these barrows are in imitation of the giant ball plasmoids seen in the far south. They are also generally oriented with the long axis pointing to the south or southwest. The concept that a huge mound of dirt, or a hollowed out barrow is required for depositing the bones of the dead will extend far into the future. The idea will be modified a number of times, but the "barrow" idea will remain, even after 2400 BC, when large constructions have stopped almost everywhere.

The Passage Graves appear a thousand years after the Long Barrows, after 3400 BC and 3100 BC, and continue to be built until circa 2400 BC. If the Long Barrows seem to be modeled after the ball plasmoids in the south, so the Passage Graves seem to be modeled after Saturn in the north sky.

Then, after about 2500 BC (I would suggest after 2350 BC), the large communal barrows are replaced by single graves under heaped-up soil, called Round Barrows.

Ron Wilcox writes about the confusion of barrows (at http://www.archtext.co.uk/onlinetexts/britains_past/):

"... barrows are frustrating to archaeologists because they are so varied that they defy classification except in very broad (and probably rather meaningless) categories. The mounds might be long, trapezoidal, ovate, rectangular, or oval while the chambers underneath can be made of wood or megaliths (large stones) and constructed in a variety of plans. Entrances can be at the sides or at the ends or in the case of the earthen long barrows entirely obliterated by the heaping up of the mound."

This should be extended to dates also. Although I have indicated a range of dates for "types" of barrows, these are not at all hard and fast. The confusion of dates

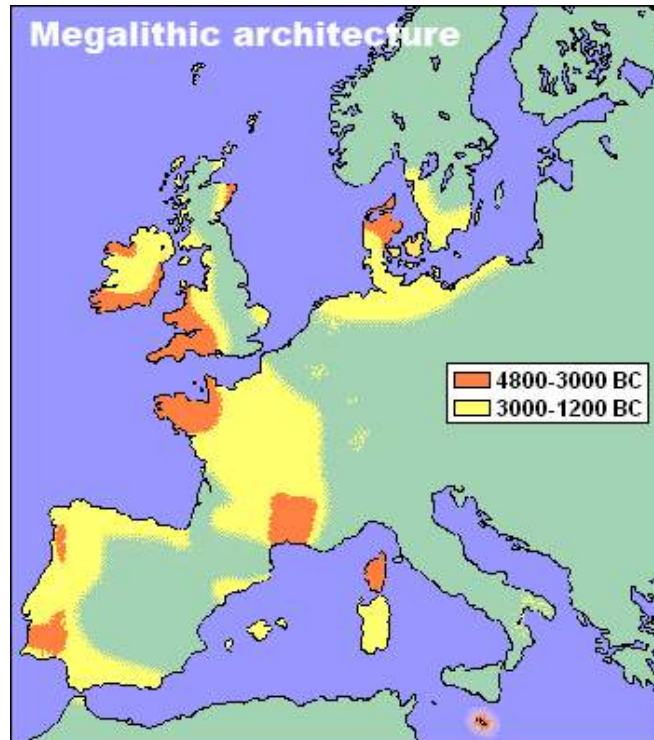
extends to the mixing of calibrated and uncalibrated Carbon-14 dates.

The Passage Graves have paired chambers left and right, up to six pairs. Most of these grave structures have an additional low exterior wall surrounding the mound of dirt. All have a clearly marked entrance with a doorway and closing stone, even in later designs which no longer allow access to the chamber. Many use a porthole as the entrance, either a single large stone with a round perforation two feet (2/3 meter) wide, or two abutted stones with semicircular cuts.

There are over a thousand barrows along the east coast of Ireland, the west coast of Britain, and the coast of Northern France, most often in areas with a clear view of the western sky. There are about 2400 in total in Western Europe. The concentration of barrows in Ireland and England is unusual. The east coast of Ireland and west coast of England were used to allow ocean access, directly from France. This can be easily understood, since these were very large construction projects, much larger than a local population of farmers would have been able to support. Water was the highway of antiquity. It allowed large numbers of people to congregate easily, both during construction and for the intended ceremonies. The east coast of Ireland and west coast of England had easy access from the projecting tip of France while providing protection from Atlantic storms.

The ocean travel reflected the attempt of the continental people of Western Europe to come closer to the strike point of the arc or plasma stream in the Northern Atlantic.

There are barrows inland also, mostly in coastal France. The earliest are at Carnac, France, along the Brittany coast. It is this Northern European stone-age culture which apparently started the fashion for barrows. The barrows spread elsewhere in Western Europe, but mostly to coastal regions with river access. After 3000 BC they spread to the Mediterranean and the Middle East, and eventually to India. The building of barrows lasts until 2400 BC.



[Image: Megalithic architecture; after Tharkun Coll, Wikipedia.]

Building on this gigantic scale, especially for the dead, had never been done before. There are older cemeteries belonging to settled towns, as in Egypt and Mesopotamia. But generally, where we have cities and permanent houses, the burials were below the floors of houses, after excarnation. The Northern Europeans at this time were hunters and slash-and-burn farmers. They had no cities, and at best only scattered housing. What did all this construction mean?

First let me outline the problems in understanding these constructions. The number of people buried in barrows do not add up to the size estimated for the workforce needed to build the barrows, and thus to the number of people who may have been expected to use the facilities when they died. This is an enigma which has frequently been noted by archaeologists. Except for a few instances of ossuaries for thousands of bones (as at Malta, for example), even a hundred skeletons would be insignificant in representing the dead of a spread-out community of a couple of hundred slash-and-burn farming families, especially for a period of a thousand years. We do not find hundreds of skeletons. The very large West Kennet Long Barrow, near Avebury henge, built around 3700 to 3600 BC, contained 46 burials (individuals of all ages) when investigated in the last century. West Kennet was in use for a thousand years before the "Beaker People"

closed it up during the construction of the nearby Avebury henge (the Avebury ditch after circa 3300 BC; the standing stones circa 2600 BC).

There are other earlier European locations of barrows: Portugal 4500 BC; Barnenez, France 4700 BC; some Carnac mounds are dated at 5800 BC. Early barrows in Portugal and France face (or parallel) the Atlantic ocean, and are thus aligned to the southwest, pointing to South America. I have other estimates for the first Carnac mounds at 4500 BC, with two larger mounds dating from 4000 BC and 3500 BC.

Some of the very large Long Barrows are of early dates, 5800 BC and 4500 BC (Carnac, Barnenez, Portugal), and likely represent the ball plasmoid above the South Pole during an earlier era, especially when these seem to face or parallel the Atlantic, rather than being oriented to the northwest. That means that the ball plasmoid was understood as a destination for the dead, something I have suggested in the chapter "The Peratt Column," with respect to the "sweepers" of the beams of electrons.

And there are other graves. Thousands of ground burials with small mounds still covered Denmark in the 19th century. These are the interments of Neolithic farmers, some of which are contemporaneous with the larger barrows. The same grave goods appear in both. [\[note 11\]](#)

Most of the barrows do not show signs of frequent use. It looks like many sites were reworked, or new interments were made in total disregard of older interments. In many instances old bones were merely swept aside to reuse the tomb.

The barrows may not have been graves at all. It is quite possible that the few skeletal remains actually are sacrifices performed at infrequent intervals. In some locations there are grave goods consisting of arrowheads. In later locations there are collections of celts, certainly many more than would be required for the afterlife. The grave goods (including occasional domestic animals) may be gifts to the Gods, along with the bones of the humans. The barrows may have simply represented attempts to pacify the Gods with sacrificed humans. I have no idea if this is correct, nor does anyone else.

Wilcox is able to suggest that the burial practices involved excarnation, after which the skull and long bones were deposited in a barrow. All the small bones of the body would have been carried off by scavengers. Wilcox writes:

"Remains of what is thought to have been an excarnation platform where dead bodies were exposed ... have been discovered at Stoney Middleton in Derbyshire [and other locations]. The platform ... was surrounded by a semi-circular wall with three standing stones by the entrance. Hundreds of human teeth and bones have been found at the site together with the tiny bones of small animals such as frogs and rodents, which are thought to have been deposited at the site in the droppings of owls and other birds of prey attracted to the decaying human flesh. The excavators suggest the site was built circa 3000 BCE and remained in use for some 1000 years."

Wilcox suggests that ultimately the barrows are territorial markers.

"Associated with causewayed enclosures [not the giant cists] and perhaps constructed by groups of people (septs or small clans) who cleared and farmed in adjacent small areas are mortuary enclosures and barrows. Professor Colin Renfrew, who has studied megalithic stalled cairns (barrows) on the island of Rousay, identifies each barrow with an adjoining territory belonging to an individual sept. The cairns not only served as places where excarnated remains (skulls and long bones) could be deposited after exposure but also as markers of the sept territories on which dwelt the people whose ancestral remains were stored within them."

It seems excessive, and "ownership" seems like a contemporaneous notion. This is of course pointed up by the fact that almost universally the barrows get very little use. Some are in use only a decade, some others last a few generations. Yet even for this last case, the number of inhumations falls far short for a clan which could have built the barrow and farmed near by.

To undertake building a Long Barrow or Passage Grave, a crew would need to be fed. The farmed plots adjacent to barrows remind me of the circumnavigation of Africa in about 600 BC by a Phoenician crew, who:

"... every autumn put in at some convenient spot on the Libyan [African] coast, sowed a patch of ground, and waited for next year's harvest. Then, having got in their grain, they put to sea again...." --Herodotus, Histories circa 440 BC.

It seems very likely that the islands of Malta in the Mediterranean, Bahrein (Dilmun) in the Persian Gulf, and Cozumel in the Caribbean were each used as island cemeteries equated to the original ball plasmoid of the south which had been seen in the ocean of the Absu. Britain and Ireland may similarly have

functioned conceptually as island cemeteries, after 8347 BC. Apparently the 7,000 or 10,000 BC site of Gobekli (Göbekli) Tepe in Anatolia, currently under excavation, was also a mortuary. [\[note 12\]](#)

Whatever their function, it seems clear that the later barrows (the Passage Graves) were built in imitation of the "city of the Gods" seen on the northwest horizon -- the giant cloud bank, the polar plasma stream above it, and the globe of Saturn and its rings above that. The barrows are complete models of this structure.

Of the later barrows, many have buttressed or scalloped exterior walls in imitation of the fluted water vapor cloud bank. In the interior of the earlier Passage Graves there is a long passage leading up to a room, but at times to two rooms side by side. The interior looks like a plan of the polar plasma stream, as a path terminating in the disk and rings of Saturn. The exterior entrances of the barrows often repeat the same design with porthole entrances flanked by stones shaped like spread wings.

Later versions of the Passage Graves feature additional rooms arranged left and right, but always at the end of a passage which is much too long to have any utility. The repeated branching of chambers in pairs off the main passage looks like a plan view of the "tree" form of the plasma instability which had shown up in earlier petroglyphs and as the later Mesopotamian cylinder seals depicting the lobe-leafed "tree of heaven" with a globe at the very top -- the terminal room of these graves. [\[note 13\]](#)

There are other hints that the barrows were built in imitation of what was seen at the far northwestern horizon. The barrows in Ireland and the west coast of England are almost always aligned to have entrances facing southeast. Archaeologists think this was done to allow the midwinter sunrise to enter the structure. But only a few late barrows do this, although perhaps by accident. Most constructions clearly miss the mark. The west-northwest by east-southeast orientation actually points the barrows to Greenland. A location near Greenland was the center of the plasma strike under way some time after 4077 BC. With few exceptions, all the monuments of France, England, and Ireland point to the center of the strike point of the plasma at the shifting location of the north magnetic pole, and thus to the center of the cloud banks seen in that direction. This accounts also for the fact that the alignments tend to wander from a single compass point. [\[note 14\]](#)

Most (but not all) of the parallel rows of stones in Brittany, which apparently precede any of the other stone henges and their access causeways in Western Europe, are aligned to the southwest, but almost all the passage graves, some of which are also assigned early dates, are aligned to the northwest, and dated from 4410 BC to 3360 BC. Only the earliest barrows at Carnac are aligned to the southwest.

This change in alignment is a change in the direction in which the primary objects of interest were seen. First the plasmoids in the southwest direction, then the cloud bank and Saturn in the northwest.

The barrows may represent the first association between death and an afterlife, where an afterlife is guaranteed through proper burial. It is interesting that in early Roman times the people of Western Europe (and throughout Central Europe in Roman times) believed in a return to life after death, whereas the Romans and Greeks did not.

The most prominent feature of the barrows is the persistent doorway, and may yield an answer as to why these projects were undertaken. The doorway suggests an interior space, even when the interior space is no longer present, as in some later barrows. Because the Western Europeans saw a dozen much smaller orbs following Mars like ducklings (identified as knots in the plasma stream, noted by Talbott) as Mars moved back toward Saturn, these people may have understood that the approaching God Mars had come to collect the dead. The cloud bank at the northwestern horizon was thus understood as a house -- perhaps a charnel house where bones awaited transport to the upper home of the Gods. Most likely the earliest barrows were simply intended to duplicate the mountain at the horizon, with the porthole as the entrance to a cave in the mountain. [\[note 15\]](#)

It could also be suggested that the lowering of Mars was seen as a threat. The lowering of Mars to the vicinity of Earth, so that it looked like a giant red globe suspended in the sky, would have been accompanied possibly by earthquakes, certainly by rising tides, and of course massive lightning discharges. It is likely that the approach of Mars could be seen in progress for decades.

If Mars came close to Earth, it would approach along the axis of the Earth's North Pole, not the location of the cloudbank in the Atlantic. The plasma stream from Saturn would most likely follow the upper path of Mars, and bend to strike Earth at the north magnetic pole. Mars would remain above or behind the cloud bank. The Maya *Chilam Balam* suggests "behind." But this is from the

perspective of 15 degrees north latitude in Central America and 90 degrees further west in longitude.

The barrows may have been a preventive measure meant to induce the God to leave again with the bodies as sacrifices meant to appease the God. [\[note 16\]](#)

The portholes of the barrows, flanked on occasion by wings cut into the same stone slabs, also suggest the circular disk of Saturn, with its flanking rings, just as the long interior passageways and the terminal room with the dual chambers on both sides duplicate the image seen in the sky. The places of sacrificial offerings were built on the only model at hand -- Saturn in plasma discharge to Earth.

We should expect most of the barrows to have been built between 4077 BC and 3147 BC, for it is only in this period that the God Mars descends to Earth at intervals. And in fact we see very few barrows constructed before 8347 BC (some might be misdated, but others would be copies of the southern plasmoid at the end of the Peratt column) and their construction falls off rapidly after 3147 BC. (But construction picks up again after 3000 BC; I will describe this in the next chapter.)

The infrequent construction and infrequent use of the barrows might be the result of the 120 to 190 year interval between approaches of the God. The lack of bodies would make sense if the trip to Heaven were reserved only for selected people, leaders, priests, or sacrificial victims. The lack of respect for earlier remains in the barrows would be accounted for if some sort of transformation -- a stellation, for example -- were to be assumed for the dead, or if earlier sacrifices were meaningless a hundred years later. As time progressed (thousands of years), the use of later barrows (in the Neolithic and Bronze Age) seems to have been extended to larger groups. It became a funeral business, as at Malta. [\[note 17\]](#)

In the 1920s the idea of a "missionary" religious sect was proposed to account for the fact that the dolmen and megalithic barrow structures are almost identical throughout Europe and the Mediterranean. The suggestion was that the religious ideas were spread by proselytes from the Eastern Mediterranean region moving west across France and around Spain to eventually reach England and Scandinavia. This idea has not held up under archaeological dating. I propose the opposite: the idea of a house of the dead spread from western Europe to the Mediterranean and may have influenced Egyptian graves and temples after 3000 BC. Based on archaeological dating, it looks like the use of large barrows moved

from Portugal north to Carnac, and then west to England and further west to Ireland. Each move brought the ceremonies ever closer to the home of the Gods seen in the northwest sky. [\[note 18\]](#)

I should add a note on cursuses. These are absolutely giant enclosures of land, marked off by dikes and exterior ditches. The dikes consist of two parallel banks about a foot (1/3 meter)high, but 20 feet 6 or 7 meters wide, with a ditch outside of these. From Ron Wilcox:

"Cursuses are a type of monument that is not at all well understood and have remained an enigma for many years. We know they date from the Neolithic period and that they are one of the most common of Neolithic monuments, with over 150 so far identified [in England]. Some excavation has been carried out on a few of the best-known. The Stonehenge Cursus which, like other examples, is a lengthy enclosure, measuring some three kilometres long [two miles] with enclosed ends where the banks are at their most obvious, varies in width from 100 metres to 150 metres [325 to 480 feet]. Its bank is about 6.5 metres across and 0.4 metres high [20 feet by 1 foot] dug out of a ditch of comparable size and is dated to between 3600 and 3300 BCE. A smaller cursus lies not far off."

All the cursuses are very long and narrow tapered enclosures, generally with the dikes at one end closer together than at the other end. In general this seems like a purposeful adoption of a diminishing perspective, yet for many cursuses the far end cannot be seen from the near end. Many cursuses also change direction abruptly at some center location, or start to curve away from their initial direction.

"The largest-known cursus is the Dorset Cursus running for 9.6 km [6 miles] from Bokerley Down to Thickthorn Down (Atkinson). Its banks are about 91 metres [296 feet] apart and, like the Stonehenge example, has enclosed ends. Investigations have shown that it was built in two sections and this seems to be a feature of cursuses that they are constructed in incremental additions, not all at the same time, rather like a medieval church. Incorporated into the Dorset Cursus are long barrows that suggest to some that the monument may have had a relationship with the ancestor cult."

I should point out also that there is no apparent dominant orientation. Even cursuses close together will point to odd compass directions. A few point to large standing stones; some are associated with long barrows; more than a few

have interments at the bank of the slimmer end. All of them were also augmented -- lengthened -- from time to time.

"Dates for cursuses seem to range from circa 3600 BCE to circa 3000 BCE," writes Wilcox. The early dates, plus the complete lack of any primary orientation, relates the cursuses to the Ley lines, which also lack any coherent orientation. If the cursuses are indeed dated to 3600 BC (most date from between 4000 BC and 2500 BC), then they date from directly after the last showing of the southern ball plasmoids, whose end I would place in 8347 BC.

Ley lines, on the other hand, seem to be later in the Neolithic, for they are all too frequently associated with monuments (standing stones), graves, graveyards, even Christian churches. And Ley lines seem to relate specifically to the landscape, as if at that point in time the landscape is occupied and owned.

What becomes clear in all this is that the British Isles must have been known in Western Europe as the Islands of the Dead. (Procopius, in *Gothic Wars* AD 565, confirms Britain as "the home of dead souls.")

Henges

Henges and causeways also precede any of the gigantic building projects of Egypt or Mesopotamia. Their construction starts in Western Europe after 4000 BC (only a few) and lasts to 3000 BC (and later), thus spanning the "Era of the Gods." Henges are not grave sites. William Stukeley, in *Stonehenge, A Temple Restored to the British Druids* (1740), notes at least 50 barrows in sight of Stonehenge. To have barrows near other Neolithic monuments is true almost everywhere in the British Isles.

The henges are public structures, perhaps equivalent to the temple platforms constructed of dried mud bricks later in Sumer. There are some 120 known henges in Britain. The only signs of activity at the henges are the remnants of occasional feasting. The material used in building henges varies with what was locally available -- trees in some Central European locations, large glacial boulders in Western Europe, and, in some cases, as at Stonehenge, dressed stone. Compared to the barrows, they are enormous undertakings, supposedly requiring a vast labor force. [\[note 19\]](#)

The henges are circles of wooden posts (frequently two or three feet in diameter, up to a meter) or standing stones, at times set in concentric circles and always

with an exterior ditch. Again we seem to encounter an imitation of the planet overhead in plasma discharge. Anthony Peratt claims that the postholes of the original Stonehenge site (a circle of 56 posts) replicates a stupendous plasma discharge -- presented as a sort of tubular "aurora" of a very limited diameter which extended millions of miles into space. These were electron bundles in arc mode, not excited Oxygen ions, as is typical of auroras.

The count of 56 posts or stones or markers is found repeatedly in almost all other henges, pecked cliff markings, and even the Big Horn Medicine Wheel in the Big Horn Mountains of Wyoming, in the USA. The posts (or stones in other henges) represent a view directly up into the plasma stream at the location of the bend in the stream, away from the north magnetic pole, which was, as Peratt has pointed out, the terminal point of the 56 bundles of concentrated plasma at the outer edges of the stream. The division of the plasma stream into 56 (or 28) bundles is an inherent feature of concentrated plasma discharges.

The view of the plasma stream -- looking like a circle of blazing lights -- was afforded anywhere where a view directly up into the plasma stream was likely. This might be a view of the plasma column as it left the overhead planets, or a view at the bend in the stream where it realigned its direction of travel to meet the magnetic pole. There would be a bend because the connection between Earth and Saturn rotated in the sky on a daily basis -- "like a swizzle stick" reads Vedic sources. [\[note 20\]](#)

Some henges have causeways which lead up to an entrance and are also edged in standing stones. These represent the column of plasma extending from Saturn to Earth -- the path leading to Heaven. The concept of a "path" from Earth to some objects in the sky had been established long ago. Note that none of the causeways are straight, all include a curve, resembling the plasma stream between Saturn and Earth, which, on nearing Earth, curved away from the direction of the polar axis to make contact with the north magnetic pole. [\[note 21\]](#)

There is no doubt that the three long causeways at Carnac represented the Peratt Column seen extending from the South Pole. This was discussed in the chapter "The Peratt Column." The fact that some shorter causeways are aligned toward the northwest, rather than the southwest, suggests that the polar apparition above the North Pole of Earth followed directly after the south polar column disappeared.

The two largest henges in England and Ireland date as follows: Avebury 3300 BC (the ditch; the stones followed 700 years later), New Grange 3200 BC. The Carnac "Grand Menhir," mentioned earlier, is a single 90-foot standing stone, also dated from 4000 BC. It is probably the largest stone ever set up.

What did the construction of stone henges (and rows of standing stones) mean? First of all, as I have noted, I believe they were made in imitation of what was seen in the sky, a round orb in plasma discharge. But it also looks as though efforts were being made to harness displays of Saint Elmo's fire.

The arc touching down in the North Atlantic after 4077 BC must have built up the Earth's static electricity and caused an electrically charged atmosphere. Any tall pointed object would arc with Saint Elmo's fire under the right conditions. This was seen as the doing of the Gods and, in imitation of the arcing circle in the sky, structures were built that would blaze with a similar ring of fire.

Even today any high pointed object (like a ship's mast) will discharge with a flickering blue flame during an electric storm. This is the result of introducing a ground potential into a location of higher elevation where it would experience a voltage difference easily measured in hundreds of volts per foot. (And particular to pointed peaks.) The almost ubiquitous ditches surrounding the henges add to the effect since they increase the electric potential and could be filled with water to wet the surrounding ground -- making the ground plane more conductive.

Location was everything, and in Western Europe the location of henges and barrows seemed to have involved three factors. First, a clear view of the western or northwestern horizon was needed with visual proximity to (and visibility of) the strike point of the plasma arc in the North Atlantic, or the dome of water vapor.

Second, easy access from the sea, via a river, to allow for the arrival of people for the purposes of construction. [\[note 22\]](#)

The third factor was the existence of a conductive plane. This would be a matter of selecting a region which had sufficient (and proper) minerals to allow the ground to readily assume an induced (negative) charge with the occurrence of an overhead positive charge (or the exact reverse). The need for a conductive ground plane is most vividly demonstrated with Saint Elmo's fire when it occurs on ships today, for they float on a highly conductive electrolytic solution -- the salt sea. [\[note 23\]](#)

The third factor also explains another reason why we see megalithic constructions clustered together on the west coast of France (near the ocean), in Central England, and on the east coast of Ireland. Separate stone henges and causeways are at times dated a thousand years apart yet built in close proximity. The locations are on the lee side of higher ground or mountain ranges or, as in France, a low coastal area. During westerly thunderstorms these areas would experience an electrically charged atmosphere overhead more frequently than other locations. Besides the Saint Elmo's fire, there would also have been many lightning strikes out of the clear blue sky.

The henges, like the barrows, seem to show very occasional, rather than continuous, use and are often abandoned for new constructions. This suggests that festivities were very infrequent, yet the work involved in the construction was enormous. Something very important was being celebrated. [\[note 24\]](#)

However, after having been in disuse for a thousand years or more, the reasons for their construction were forgotten and they may have been seen only as some sort of holy place from antiquity and were used for occasional interments. After 3000 BC there are additional henges built, including many which served no purpose except to duplicate the past. The frequent reconstructions of Stonehenge extend over a period of 1500 years after 3100 BC.

The henges and causeways should be distinguished from the thousands of barrows and ossuaries, but since the graves are constructed both earlier and during the same time period in parallel with the public monuments, the combined effect can be very confusing. One author notes the variety of origins as "inspired by outside influences." I would suggest that nothing was built in prehistory which was not done in imitation and that a connecting thread can be seen in the variety of construction if we look towards the sky. The structures were built in imitation of the home of the Gods. [\[note 25\]](#)

After 3147 BC the static electricity in the atmosphere declined enough to make wood and stone henges ineffective in triggering a display of heavenly fire. As air moisture lessened, ground water dropped, and wooden posts dried out, other means for these spectacular displays were required. At Stonehenge in England a late desperate effort included changing the stones to a blue rock (transported from 200 miles away), on the presumption that blue rocks would cause blue flames, but they were soon discarded and much larger local gray sandstone slabs were substituted. [\[note 26\]](#)

The Egyptians resorted to massive stone pyramids for the lightning displays and the Mesopotamians built multi-storied ziggurats to achieve the same effect, both started after 2700 BC. The stone henges and causeways would remain sacred to future generations, but no new structures of that type were seriously attempted after 3000 BC with some exceptions. Their day was over. (I'll deal with later barrows, the endless reconstruction of Stonehenge, and further henges in the next chapter.)

Temples and Platforms

In Egypt and Mesopotamia, as elsewhere, the descent of Mars was understood as a visit to Middle Earth by the God. Temples and platforms were constructed to receive the God, with the courtyards and entrances facing northwest. The first temple at Jerusalem, built by Solomon, faced 6 degrees west of north. [\[note 27\]](#)

Temple orientations are not at all uniform, partially because most of the archaeological records date from antiquity. The functions of temples were entirely different from the mastabas and grave sites which, even later, continued to be oriented toward the northwest.

Mars would appear to get larger as it dropped below Saturn, and would follow the centerline between Saturn and Earth, being governed by gravitational forces, and would not be electrically or magnetically nudged. Visually, Mars would therefore travel in a spiral in dropping closer to Earth, looking as if it escaped Saturn altogether.

Mars would not follow the path of the plasma stream to the Earth's north magnetic pole, but rather the plasma stream would follow the location of Mars. Plasma streams do not move objects. Talbott has recorded how Mars would have looked when it went off axis (moved away from the center of Saturn).

Although the plasma stream took a bend in its travel to make contact with Earth's magnetic north pole (starting maybe some 30 or 40 Earth diameters above Earth), Mars would not slip away from the Saturn-Earth axis. It is also doubtful if Mars approached any closer than 20 Earth diameters (160,000 miles -- somewhat closer than the Moon). At that location all of its features would have been clearly visible. From anywhere in the world Mars would also have looked to hover over the location of the Earth's North Pole. Any object located above the north geographic pole of the Earth would visually be seen as standing

still at the pole star. This location is considerably displaced from the circle in which Saturn revolved around the pole.

As I have pointed out, it took a minimum of 120 years to complete a lowering to Earth and a return to Saturn. Humans had plenty of warning that Mars was about to visit again. As Mars stopped in its travel toward Earth and reversed direction after some months, the efforts on the part of humanity were rewarded with this apparent warding off of the planet.

Mars would have approached close enough to be seen as a giant globe above the north horizon, but of course we actually have no idea how close Mars came before reversing and moving up again toward Saturn. I don't know why this happened. Noone does. It certainly is not due to Mars stopping in its descent when the electric repulsion between the planets equaled the gravitational attraction.

Mars would have been seen to stand still above Earth at its lowest descent because Mars rotates at the same speed as Earth. The plasma stream, which at various times in the "Era of the Gods" was probably in glow mode, followed and enclosed Mars (this shows in the white and red crown of the pharaohs of Egypt), then bent away toward the Earth's north magnetic pole. From the earliest Egyptian iconography we could thus guess that late in the "Era of the Gods" the plasma stream was in glow mode rather than arc mode. [\[note 28\]](#)

The previous chapter described how the plasma streamers from Saturn, when impinging on Mercury would form of a star within a crescent. If Mercury deviated from being directly below Saturn, the star pattern would be offset to make it look more like a seashell instead. The change in the look of Mercury is not due to a change in perspective, because the distances involved are just too great. It is more likely that Mercury (as with Mars) periodically deviated from its position directly below Saturn.

The first temple buildings, made of wood and built as houses, were constructed in Central Europe among the first Neolithic farmers, the people whom Gimbutas calls the "Old Europeans." Gimbutas also points to some 50 miniature temples which, like the figurines, were probably modeled on Saturn ablaze in the sky. The miniatures are almost always on short stilts, have open fronts, and include a wide porch like the lower rings of Saturn. Many include the furniture -- ovens, seats, fire pits, and tables -- which are the furnishings of houses and became the fittings of full-scale temples. Many of the model temples are populated with tiny figurines -- probably representing the satellites of Saturn. [\[note 29\]](#)

There is clear evidence from Sumer and Egypt of platforms and temple enclosures (circa 4500 BC for the Ubaid city of "Eridu" in Mesopotamia). In Sumer the temple buildings start as large rooms equipped with niches and what looks like an offering table very similar to Central European designs, and soon become large compounds with enormous buildings apparently used as work areas and for storage.

The God is understood to be a local visitor living with the humans. In Egypt and Mesopotamia, as probably elsewhere in the settled world, local images or statues were kept as the presence of the God. These statues were not "representations" of the God -- they were universally understood to be the actual God. People everywhere identify *their* local temple as the home of the God. The name of the God varied widely from city to city. [\[note 30\]](#)

The localization of the Gods is a direct response to what was seen in the skies. In that the image above the North Pole mostly remained in one location, even with Mars periodically lowering, it was visually seen as "directly above." Thus any occupied space on Earth was understood as "directly below."

The columned porticos of the later Egyptian temples, facing north, are thought to represent the papyrus-forested Nile delta through which the God, or Gods, had entered the country and the temples. The Egyptian Gods were recognized even in antiquity as coming from the north, traveling via the Nile. We are told this at the time of the Greek occupation of Egypt after 315 BC, but the columns were as likely to have been intended to imitate the many-columned plasma path to the Upper Land. The plasma stream from the Upper Land was certainly equated with the Nile. [\[note 31\]](#)

The priesthood throughout Mesopotamia and Egypt establishes an economy based on maintaining the temple of the God or Gods. Food was offered and the statues were walked, washed, and dressed. Far-ranging trade eventually results from the needs of the temples.

Among herders and dispersed farm populations, the offering altar consisted of one of the "high places" to which the Bible makes frequent reference. With the upper atmosphere supercharged with electricity, the effect could be impressive. The God would light the fires with a lightning strike and consume the smoke from the burning fat as it ionized to rise directly into the sky. The following is Elijah in action in about 900 BC:

"The opposition builds its fire, places its offering, dances about, and gets no response. Elijah builds an altar of stone, places his offering, and then pours twelve barrels of water upon the offering. He douses the offering thrice. He digs a trench around the altar and fills it with water."

"The time is approaching evening. The water soaks down and makes contact with the water table. The approaching thunderstorm is preceded by a heavy, moist, ionized, and charged lowering atmosphere. The fire of Yahweh descends upon the offering of Elijah. His triumphant followers escort the prophets of Baal to a nearby place and kill them."

-- III Kings 18, narratized by Alfred de Grazia *God's Fire* (1983)

The Gods Destroy Earth

The theater in the sky comes to a sudden end in 3147 BC. Earth experiences a violent disturbance which brought the civilizations of the Earth to a stop with a massive flood, except on highlands in Mesopotamia (as in Persia and Anatolia), the foothills of the Himalayas, and in protected river valleys (as in Egypt). Floods and the return of a colder climate are noted in the archaeological and climatological records.

The year 3147 BC marks the worldwide flood. It is the flood which generates stories all over the world of survivors in arks or boats or canoes. In flood tales throughout the world, nearly all the boats or canoes moor to a high mountain peak. The "mountain" is a celestial apparition dominating the skies directly after and for a additional 280 years. It is Jupiter in plasma discharge to its surroundings from its south polar region.

Among farmer populations, the stories tell of arks provisioned with seeds and farm animals, an event actually experienced earlier by the people fleeing the Black Sea flood of 5600 BC. The Black Sea flood story had been carried far afield with the diaspora of the survivors, who show up in Eastern and Central Europe, Central Asia (as far east as the border of China), Mediterranean Europe, Anatolia, and of course in Mesopotamia between 5400 and 3000 BC. The Black Sea survivors were farmers and fishermen, and thus generated a hundred stories of family, farm animals, and seeds saved aboard a multiplicity of boats. It is only from the casual references in Mesopotamian documents to a "flood before the flood" that we know that the Sumerians understood the repeating nature of worldwide floods.

Yet another worldwide "flood event" would happen in 2349 BC. This also was understood as a major flood. The Chinese *Annals of Shu* report that it took Yu, in the service of the emperor Yao, nine years to empty the mountain valleys of water from the "inundation which overtopped the hills." Yu is dated to around 2200 BC. The "legendary" Yu is traditionally placed as reaching the throne of the Xia dynasty in 2205 BC. The Xia lasted to about 1750 BC. The Chinese "flood event" is dated to approximately the same time as the Noachian flood of the Bible, but neither of these were floods. It was a period of extreme rains and hurricanes. More on this in a following chapter.

The whole issue of "flood" is complicated by the fact that similar events are likely to be collapsed in memory, especially when these happen at the infrequent interval of one or two thousand years. People will always think of the last flood as "the flood," and the image will merge with previous memories into a composite.

This was true for the Hebrews, for whom the "flood" of 2349 BC, the flood of Noah, was the only flood in their recorded experience. However, the Noachian flood story incorporates elements of the earlier flood of 3147 BC, and perhaps also the archetypal Black Sea flood, as does the story of the flood of Gilgamesh.

This last is hinted at in the *Epic of Gilgamesh*. Although nominally describing the flood of 3147 BC, the *Epic of Gilgamesh* clearly refers back to the spectacular flooding of the Black Sea basin in 5600 BC, with its descriptive references to the Black Sea (the "Sea of Death") and the Bosphorus Strait (which Gilgamesh's ferryman navigates by hanging a basket of rocks over the edge of his boat). Gilgamesh, in an impulsive gesture reminiscent of Hercules, cuts the ropes to the basket. On the north shore Gilgamesh visits with the Sumerian Noah, Utnapishtim. [\[note 32\]](#)

Flood stories are ubiquitous, and, interestingly, none of them recall local events where only thousands died. The flood stories all claim to be about a universal deluge, a worldwide catastrophic event which killed nearly everyone and also decimated the plants and animals. [\[note 33\]](#)

"But Deucalion in the ark, floating over the sea for nine days and as many nights, grounded on Parnassus, and there, when the rains ceased, he disembarked, and sacrificed to Zeus."

-- Apollodorus, 2nd century

"Tahiti was destroyed by a flood. A husband and a wife were saved. They had a chicken, dog, kitten, and a pig with them. They took refuge on Mount O Pitohito."

-- Tahiti, contemporary

"When the Moon did not yet exist, a bearded old man named Botschika taught the arts of agriculture, clothing, worship and politics to the people. His beautiful but malevolent wife was Huythaca. She caused a flood in which most people perished. Botschika then turned her into the Moon."

-- Columbia, contemporary [\[note 34\]](#)

At this point we have flood dates for circa 5600 BC, 3147 BC, and 2349 BC. But apparently the disturbance of 3147 was absolutely overwhelming. The *Epic of Gilgamesh* expresses the regrets even the Gods had for the utter destruction this flood caused.

*"How could I do this!
Am I so stupid,
That I give life
Only to take it away,
So that people fill the sea like fishes?"*

-- Inanna, in the *Epic of Gilgamesh*

Endnotes

Note 1 --

See the chapter "The Maya Calendar," for how reasonable the date of 3147 BC is if solar years are used rather than years of 365.24 days. In 747 BC, the Olmecs added 6 Baktuns of 400 Tuns to have a Long Count starting date of 6.0.0.0.0 on February 27th -- where a "Tun" was a solar year, at that time understood as representing 360 days. (See "The Maya Calendar," also for the concept of the Long Count, Baktuns, and Tuns.) If we understand that the Olmecs assumed that the year had always been 360 days, then we can extend this concept to say that the Olmecs counted in Tun years, where a Tun was a solar year -- without regard to the actual number of days in the year. Thus, subtracting 2400 solar years (6

Baktuns) from 747 BC, the date of the end of the "Era of the Gods" would be 3147 BC.

Hindu sources identify a number of calendars. A *Kali* era started on February 18, 3102 BC. In Kashmir, the *Laukika* era starts in 3076 BC. A third, the *Brhaspaticakra* era, starts in 3116 BC (15th *Encyclopaedia Britannica*). In China the date which comes closest to the beginning of the third millennium BC is the starting date of the first of the "Legendary Emperors" *Fu Shi* dated at 2953 BC.

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Note 2 --

The *King List* was brought to Greece by Berossus, a priest of former Babylon, in circa 280 BC and published. Until the 19th century AD, when cuneiform copies were found during archaeological excavations in Mesopotamia, this was the only extant record.

The *Dynastic Chronicle* from Babylonia lists 9 kings before the flood. This per A.K. Grayson, *Assyrian and Babylonian Chronicles* (1975), where the opening text is the pre-flood list of the Sumerian *King List*. Berossus lists ten kings, one of which was the founder of the city of Babylon (which did not exist yet at that time).

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Note 3 --

In fact, the documents from Sumer list the numbers in "sars" which is 3600, that is, 60 times 60, and in "ners" which represents 600, 10 times 60. The Sumerians used the decimal numbering system, but large numbers were expressed in sexagesimal. In the 7th century BC, the Assyrians still used "sarus" specifically to mean *3600 days*, that is, a decade of years of 360 days.

See the Appendix A, "Chronology," for the basis of a year of 225 days, and an analysis of the *King List*. I will use Solar years (a rotation around the Sun) rather than our 365.24-day years. It would make little sense to do otherwise, since even "calibrated" Carbon-14 dates have been unwittingly adjusted to Solar years.

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Note 4 --

It is also from this time that the lengths of rulership become reasonable. The previous kingship at Kish and Uruk had included some 20 long-lived kings. Gilgamesh himself -- fiction or not -- is attributed a reign (or life span) of 126 years. It has frequently been suspected that some of the figures for the "kings after the flood" represent how long a king lived, rather than the length of his reign. At 126 years of 240 days, Gilgamesh would have lived to the age of 82.

The very early poem *Gilgamesh and Aga* recounts the defiance of Gilgamesh as he stands up against Aga the King of Kish over a matter of digging wells. The poem has no literary conclusion as we would like, although there is what looks like a later ending added which tells of Gilgamesh's capture and release of Aga.

A schema of notation is used for the long-lived "kings after the flood," which is different from the "turns" used for the "kings before the flood" and not at all clear. The literary style of the initial portion of the *King List*, the "kings before the flood," also differs from the remainder of the list in using archaic language. Near the end of the list, for the last of the records at the time of the fall of the Akkadian Empire, this style is used again.

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Note 5 --

"Remarkable organizing ability was required to administer huge estates, in which, under the 3rd dynasty of Ur, for example, it was not unusual to prepare accounts for thousands of cattle or tens of thousands of bundles of reeds. Similar figures are attested at Ebla, three centuries earlier."

-- *Encyclopaedia Britannica*, 15th edition.

"There are samples of the clay counters used in the Near East from about 9,000 BC to 1500 BC. There were about 500 distinct types, although not in all times and places. Tokens start to be found at widely separated sites as of 8,000 BC (Carbon-14 dated), such as Level III of Tell Mureybet in Syria and Level E of Ganj Dareh in Western Iran. Tokens were used at sites throughout the Near East, from Israel to Syria, Turkey, Iraq, and Iran, with the exception of Central Anatolia. The farthest extent of their use was from Khartoum in the Sudan to the pre-Harappan [in Pakistan]."

-- John Alan Halloran, [\[http://www.sumerian.org/\]](http://www.sumerian.org/)

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Note 6 --

If the arc from Saturn to Mars started up and extinguished eight times over the thousand years of the "Era of the Gods" and perhaps lasted over a hundred years each time then we should expect the upper hemisphere of Mars to have been severely burned. The top hemisphere is actually some three miles lower, but for no clear reason, unless it was originally an ocean. What is more interesting is the lack of craters in the north and the existence instead of five very large fulgamite lightning blisters (Olympus Mons, Arsia Mons, Pavonis Mons, Ascræus Mons, and Elysium Mons) and three smaller ones (Hecatus Tholus, Albor Tholus, and Tharsis Tholus), clearly the mark of eight stupendous electric lightning strikes. Olympus Mons shows six separate strike marks (circular molten areas). The blisters are hundreds of times larger than any volcanoes on Earth. The caldera of Olympus Mons is 40 miles in diameter. These are not volcanoes.

The *Chilam Balam* book of the Maya calls this first Mars (actually calling it "first" as the Egyptians do) "Bolon Dzacab" which translates as "Nine-Lives" or "Nine Generations." The Olmecs thus perhaps counted occurrences of Mars when it was centered on Saturn, rather than counting the number of times it lowered to Earth. Mesoamerican languages count the existence of an event on completion, not at the start, as we do. The title "Nine-Lives" is typical of suggesting that the God appeared nine times. But this is not clear. It is more likely that the name "Bolon Dzacab" was given to Mars in the 8th and 7th century BC, when it damaged Earth nine times. See the chapter "The Chilam Balam" for details.

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Note 7 --

There are early Ubaid (5600 to 4000 BC) walled cities in the same region. Walls were originally built as dikes and used to prevent flooding. The Ubaid culture represents the first settlers of lower Mesopotamia between the Tigris and Euphrates and precedes the Sumerian. But the model of a "city" comes from much older established cities of Anatolia (some listed below), which were frequently at war with each other, as shown by the collections of baked clay throwing balls at some locations.

The text of the *King List*, where each city is attacked or sacked in turn, reflects the political conditions in Sumer at a later time, when the cities of Sumer constantly attacked each other to remove kings and city gods.

The first *written record* of the construction of city walls in Sumer is the description of the walls of Uruk. The building of Uruk's city walls is attributed to Gilgamesh (circa 2700 BC), although archaeological indications are that he repaired the walls rather than built them. The first Sumerian kingship, however, was at the city of Kish, 300 years earlier. This dates the earliest composition of the oldest portion of the *King List*, including the "kings before the flood," to a 300-year period after 3147 BC at the city of Kish. The next portion, representing the addition of the kings of Kish and Uruk, probably dates to shortly after 2700 BC -- the time of Gilgamesh.

The *Vedas* list the number of times Mars approaches Earth as "a hundred," but the number is clearly meant as "a lot of times." The content of the *Vedas* reflects a history of the world since the "Era of the Gods" (or earlier). The *Vedas* were only rendered in script after 500 BC. A number of people have based complete cosmologies on the Vedic information, for example, Donald W. Patten and Samuel R. Windsor *The Mars-Earth Wars* (1996), and John Ackerman *Firmament: Recent Catastrophic History of the Earth* (1996).

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Note 8 --

At this time, the Sun was probably visible, and if not, then at least it got light and dark in rotation, and days could be counted in this manner. As I have noted elsewhere, the rotation of the egg, "without cease," in a circle around the North Pole would also have indicated the rotation of the Earth.

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Note 9 --

The listed dates also show up in readings of texts of North American archaeology as dates marking long-term changes in climate, moisture, and vegetation, except for the appearance of the egg in 4939 BC. Thus the dates 5800 BC, 4219 BC, and 3147 BC, which are detailed in this narrative, may be compared with the approximate archaeological dates of 6000 or 5800 BC, 4300 BC, and 3100 or 3000 BC when changes in climatic conditions are noted.

For the date of 4219 BC I have two alternatives. From Josephus, the first century AD historian, a date of 4077 BC can be derived (already noted). From the Turin Canon, a Egyptian papyrus document, we can derive a date of approximately 4300 BC.

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Note 10 --

There are some impressive early sites in the Levant, Anatolia, and Pakistan: Eynan in Palestine, the earliest farming town (with houses), dated about 9000 BC; Jericho in Palestine, a farming and herding town, with its tower and enclosing wall, dated from 8000 BC (abandoned by 6800 BC); Catal Huyuk, a village in Central Anatolia, dated from 7400 BC (abandoned 6200 BC); Hamoukar in Eastern Anatolia (near present Mosul), founded 5000 or 4500 BC and destroyed in 3500 BC; Mehrgarh, in the south of Pakistan (Balochistan), started as a village around 6000 BC, lasting to 2500 BC.

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Note 11 --

The "Neolithic" (as representing farming) had reached Central and Southern France by 5400 BC, but did not reach Northern and Western France until 5000 BC, the British Isles in 4300 to 4200 BC, and Scandinavia in 4100 BC.

A summary of Neolithic funeral practices follows:

- Excarnation (removal of the flesh) and decapitation are frequently used as the burial rite, as, for example, at Catal Huyuk in Anatolia, 6000 BC, depicted even in murals. Scavenger birds are used to remove flesh. Burial of the bones is traditional, that is, below the floors of houses. Skulls are often kept separately in the living space.
- There are over two thousand barrows in France, Ireland, England, some from 5800 BC, but most from 3800 to 3400 BC, with passage graves starting in 3400 and lasting to 2400 BC. Burials are infrequent or the sites are reused. (Reuse of burial sites occurs worldwide.) There is infrequent evidence of fire, perhaps as a cremation practice.
- The much later Kurgans of Eastern Europe use pit graves (4500 BC to 2000 BC). A pit grave is a "kurgan." These represent a peak-roofed house built underground, carry grave goods for accompaniment of the dead, and clearly differentiate distinct social classes.
- Many Western European stone henges are started in 3600 to 3400 BC, but most much later. Location seems important. All have easy sea and river access. Actual burials at henges are very infrequent. They may have been used ceremonially.

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Note 12 --

The site of Gobekli Tepe in Turkey was carbon dated to 8,500 BC when first investigated, which is the date (8,347 BC) of the last appearance of the "turtle" as recorded in stelae by the Maya. Today the official construction dates vary, and tend toward a variety of ages -- 9600 BC to 7300 BC.

The noted enigma of Gobekli Tepe is that archaeologists cannot imagine a hunter-gatherer society capable of such extraordinary construction efforts. The frequent depiction of wild animals on the pillars of the site is reminiscent of the Goddess Mari of the Basque, the Goddess of animals.

Perhaps archaeologists forget a few things. First, that Cro-Magnon humans had been around for 35,000 years in that territory. Second, they forget that hunting in this region left an enormous amount of free time. Anatolia at that time was a paradise. The constructions did not require an extensive agricultural base for the labor force. They also forget that limestone, when first exposed in a quarry, is quite soft and very easy to cut and carve. After all, limestone is created under seawater. It hardens after exposure to the atmosphere.

Last, archaeologists, growing up in a society where God has become a philosophical concept, underestimate the important concept of life after death in remote antiquity.

Others have suggested that the Gobekli Tepe "temples" might have been mortuaries (but few bones have been found). When in 8347 BC the ball plasmoids disappeared, and the site was officially (and with a coordinated group effort) abandoned by backfilling the space with garbage and loose dirt. (Although some of this has been dated to a much earlier time.) We don't know what happened to the bones, if there were any. At Malta, all the bones of the various "temples" were dug up, and stored in a large underground space under one of the temples -- disarticulated and mixed with black dirt, to be found 10,000 years later.

Following from the original proposal of three ball plasmoid seen in the far south, as described by Peratt, the display would have disappeared a number of times, thus requiring reconstructions of the temples.

A hilltop location would be fully appropriate to the southern celestial display which would only be seen from an elevation. At present it is becoming suggested that there may have been three levels of the Gobekli Tepe "temples"

excavated so far. But there are some 16 additional circular structures. The T-shaped posts have been used at other locations in Anatolia of approximate the same dates.

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Note 13 --

Single chamber barrows disappear after about 3500 BC. This may be an indication of the time at which multi-lobed plasma discontinuities become prevalent in the stream of plasma from Saturn.

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Note 14 --

See Maximillian Ottmar Baldia "A Spatial Analysis of Megalithic Tombs" (Doctoral Dissertation, Southern Methodist University, 1995), which reports on the average orientation of all 2385 tombs in Western Europe. Most chamber alignments are on compass directions of roughly west-northwest and east-southeast, with entrances on the southeast side. These are median figures, that is, there are also some north-south and east-west orientations.

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Note 15 --

The smaller orbs following Mars were identified as seven in number by Talbott - - overheard as an off-hand comment by others at a Saturnian conference. Anthony Peratt notes that the number of nodules developed in Birkeland currents is almost always seven or nine in number. On reaching Saturn they are seen as surrounding Mars (but at that point these are the seven satellites of Saturn). This is reminiscent of Snow White and the Seven Dwarfs, or any number of similar narratives, involving the theme of death, a red orb, and a far-away residence. Snow White is Mercury, of course.

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Note 16 --

You wonder why the population did not simply move away from the coasts of the North Atlantic. On the other hand, maybe they did. From artifacts and occasional pottery, it looks like the people building the barrows were not indigenous to this region.

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Note 17 --

Some barrows in Europe date well into the Middle Ages, but many of these are fake and were constructed to claim land ownership. Barrows were still under construction in India in the 19th century AD.

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Note 18 --

The oldest aboveground temple at Malta is Gigantija, on the island of Gozo, dated to 3600 BC, and has its major axis aligned northwest and southeast, with the entrance in the southeast. The temple is the prototype for all the later Malta temples -- 30 to 40 of them -- and used the largest megaliths.

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Note 19 --

We may be overestimating the size of the workforce needed to move stones, but a great deal of labor was required to build the ditches around the henges. Thus, specifically for Stonehenge, the suggestion that this structure was built by a non-indigenous force, the "Beaker People," then accounts for the fact that the shallow ditch was never maintained, and additionally that the bank was placed on the wrong side of the ditch.

The stones are much easier to move if balanced at the center on short pieces of wood, cut across the grain. Wood has high compressive strength in the direction of the grain. The use of rollers, often suggested, is just an insane idea and will not do. The logs would be bruised and crushed, and rollers allow almost no control over the direction the stones will move unless the ground is dead flat and the logs very even. Angled-up sleds are much more likely to get any serious work done.

There have been many efforts to duplicate the dragging of large boulders in France, Holland, Germany, and England. They all demonstrate that a very large workforce is required, and that the boulders never move as expected when placed on rollers. Descriptions of some of these efforts may be found in Jean-Pierre Mohen, *The World of Megaliths* (1990). Included as an anecdote, is the following statement:

"The old Breton quarrymen knew how to manoeuvre moderately sized blocks [of stone] by using wedges, rollers, levers, and ropes to move them

sideways on their points of balance and imbalance close to the center of gravity. Thus even small groups of men could roll and shift blocks sideways by working first one side and then the other."

The stones can be walked and raised by two people in a few hours by rocking and inserting wood left and right near the center. Rocking involves people walking from one end to the other on the top of the stone. We tend to think in terms of dragging giant boulders, which has to be the most inefficient way of working; we don't think in terms of vast quantities of available lumber. Large stones can also be moved relatively easily by using a track of wooden rails as supports and shuffling the stones along with pinch bars. This apparently was the method used in Malta.

There is, in fact, a suggestion by Herodotus that the blocks of the pyramids at Giza were moved with some unidentified devices, requiring thousands of components. The best interpretation has been to suggest that these devices were short stubs of wood. A walked megalith can be moved with minimal effort, requiring only a few workers, since the momentum of the block of stone will aid in movement. See for example the website of W.T. Wallington, at [\[http://www.theforgottentechnology.com\]](http://www.theforgottentechnology.com). Wallington writes:

"I have found that ancient legends from around the world are true. Some megaliths could have been set in place by as few as one man. I could build The Great Pyramid of Giza, using my techniques and primitive tools. On a twenty-five year construction schedule, (working forty hours per week at fifty weeks per year, using the input of myself to calculate) I would need a crew of 520 people to move blocks from the main quarry to the site and another 100 to move the blocks on site. For hoisting I need a crew of 120 (40 working and 80 rotating). My crew can raise 7000 pounds [at] 100 feet per minute. I have found the design of the pyramid is functional in its own construction. No external ramp is needed."

What is amazing about Wallington's "methods" is that these duplicate my own experience in moving huge machinery, yet every "expert" in the world will attempt to drag the blocks. This is even true of recent attempts, where people have forgotten how this could have been done. I have "walked" refrigerators up flights of stairs, and moved 40-ton machines with a pinch bar (also called a pry bar) and a can of oil.

See also Gordon Pipes's article at [\[http://www.world-mysteries.com/gw_gpipes.htm\]](http://www.world-mysteries.com/gw_gpipes.htm).

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Note 20 --

Some of the earliest henges are the Central European wood henges, called "roundels," supposedly dating from 5000 BC. Roundels are closely spaced two-foot diameter tree trunks set up in a large circle with four open entrances. No signs of interior structures or burials are associated with these. The only activity seems to have been feasting. That is generally true for stone henges also.

Peratt in his 2003 article in *IEEE Transactions on Plasma Science* separates the plasma stream display from the source (the anode) -- which (for us) would be the planet Saturn. He notes that the stream most often tends to divide itself into 56 or 28 discrete streams at the anode, and compares this to the henges and the circular designs pecked into vertical rock walls, worldwide. He notes that he has found "hundreds" of these coincidences, on separate continents: the Americas, Europe, Australia. All use 56 posts or megaliths (or pecked depressions) in the outermost circle. The coincidence of design includes a secondary interior ring of plasma streams, and a flow from the outer to the interior rings (representing a substantial increase in current of the plasma stream). When these designs are presented high up on cliffs with a clear view of the south, they obviously represent the plasma stream from the south, the "Peratt Column."

Peratt claims Stonehenge is an exact model of *"a plasma discharge, a lightning stroke that must have been unprecedented in intensity and duration."* He certainly is not talking about an aurora. Presented in a paper at the University of Pennsylvania Museum of Archaeology and Anthropology "Celestial Catastrophes in Human Prehistory?" on 17 October, 2001. Peratt has avoided stating the obvious -- that the "lightning stroke of unprecedented intensity and duration" is a planet in arc mode plasma discharge with Earth.

The henges, however, refer to an object in the northwest on a sight-line from near England and Ireland where these henges were constructed. The dates of the henges do not coincide with the estimated dates of the three ball plasmoids seen in the south. The people in the northern hemisphere no longer needed to climb up mountainsides to get a good look at the object in the sky. It was adjacent to them and almost directly above them.

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Note 21 --

A Roman author of the first century BC, Diodorus, makes note of "a temple to Apollo" in use with the "Hyperboreans" (presumably England), where "the God appears every 19 years." This is obviously in reference to Stonehenge, which was reconstructed in 2100 BC, with an entrance aligned by coincidence to match a midsummer sunrise, in fact, the current midsummer sunrise.

The axis of Stonehenge into the causeway leading away, when estimated on the basis of some fallen stones in the causeway with romantic names like "Slaughter Stone," is at an azimuth of 49.95 degrees, measured by Alexander Thom in 1976. The axis was measured from one of the original postholes, which had been backfilled with chalk. Postholes have not relocated, but none of the standing stones are in their original locations, so this measure of 49.95 degrees might or might not have any meaning.

It would be off from today's sunrise location at the solstice (50 degrees azimuth) by less than half the width of a finger held at arm's length, but of course by much more if compared to the uniformitarian retrocalculated midsummer sunrise in 2100 BC (when the causeway was apparently added) of 53.3 degrees azimuth -- it would be off by 3 and a half fingers, a fist. Wikipedia claims "the summer solstice sun rose close to the Heel Stone, and the sun's first rays shone into the centre of the monument between the horseshoe arrangement." That seems OK for today, but does not fit the original construction undertaken in 3100 BC, 2400 BC, or 2100 BC. The idea of celebrating the solstice seems to be a peculiarly British concept.

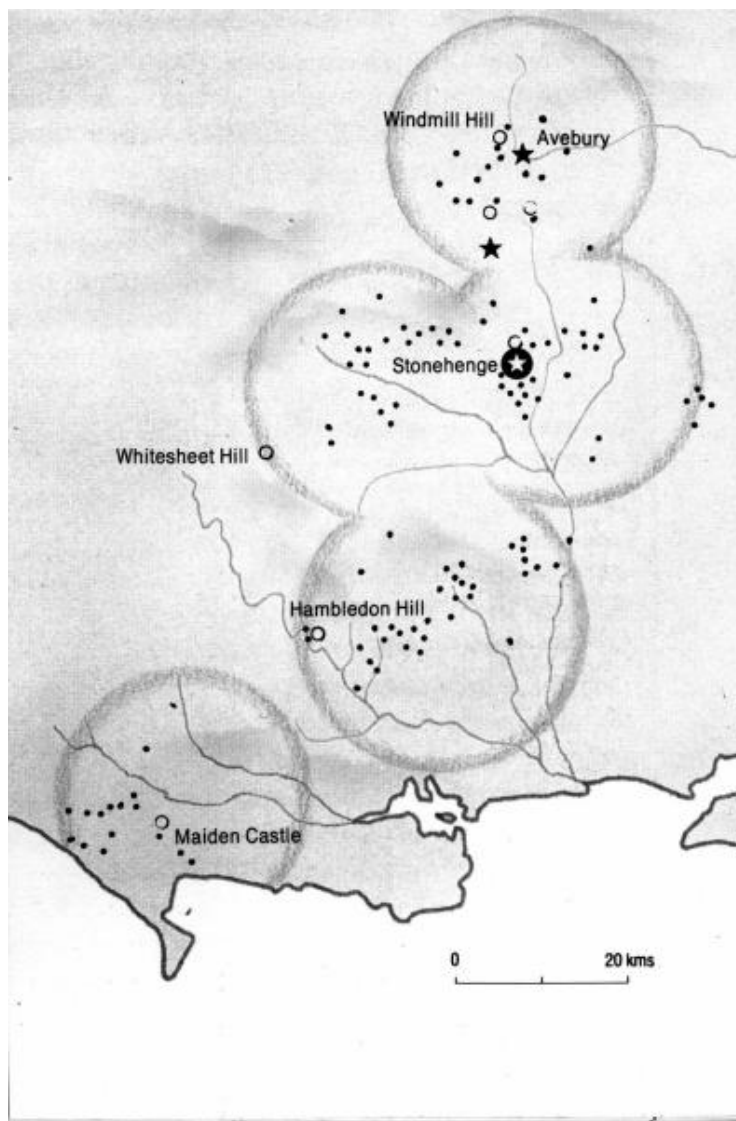
Diodorus may have presumed that the 19-year cycle marked lunar eclipses, which already before Diodorus's time were known to occur on a 19-year "Metonic cycle." The number 56, the number of postholes at Stonehenge, is three Metonic cycles of 19, 19, and 18 year intervals. The circle of blue stones at Stonehenge also numbers 19. An interesting coincidence.

The *Iliad* takes place over 55 days and one night. The night event is the logical center of the book, and all the other events rigorously match each other about this center. The main actors take on animal characteristics for the night raids at the center of the book, and the next morning things start to go better for the Greeks. You will wonder why an author of 600 BC feels the need for this numerological organization. See Guy Davenport, *Geography of the Imagination* (1981).

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Note 22 --

Location of Avebury, Stonehenge, and other megalithic sites in Southern England. All have access via rivers.



[Image: Henge areas in Southern England. Source unknown.]

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Note 23 --

See for example Pierre Mereaux, in *Carnac: Des Pierres Pour Les Vivants* (1992), who rejects the suggestion of an astronomical alignment proposed earlier by Alexander Thom for the Carnac causeways. As paraphrased in a review by Roslyn Strong in the *NEARA Journal* (2001), "there seemed to be no reason to erect thousands of stones to verify certain risings and settings of the

sun or moon." Nor does Mereaux accept the "cult of the dead" proposed by Roger Joussaume in *Dolmens pour les Morts* (1985?).

Mereaux investigated the electric properties of the granite menhirs at Carnac, as well as the properties of the geological subsurface of the region. One conclusion is that the standing stones would readily attract lightning (and of course Saint Elmo's Fire). There were no stones erected where the subsurface was not composed of quartz-bearing rock. Where the menhirs stand, the soil is very shallow, and thus the menhirs are in contact with the subsurface rock. I do not accept Mereaux's thesis that the alignments represent a megalithic seismic detector. Who ever needed that?

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Note 24 --

In Mesoamerica (Mexico) there is no record of monuments before about 1500 BC, although there are in Guatemala. In South America there are many constructions dating to the "Era of the Gods" or shortly after.



[Image: Ouachita mounds, circa 3400 BC. Artist's rendition.
Ouachita river bank, Louisiana. Watson Brake diagram by Martin Pate.]

In North America an oval of mounds (11 of them) at Ouachita in Louisiana, dated to 3400 BC, stands out. This also was not a burial or occupation site.

The next serious mound building phase in North America is the Adena culture, located throughout the Ohio valley, and dating from circa 700 BC. This is followed by the much wider distributed Hopewell mound culture. The mounds of both of these cultures were graves.

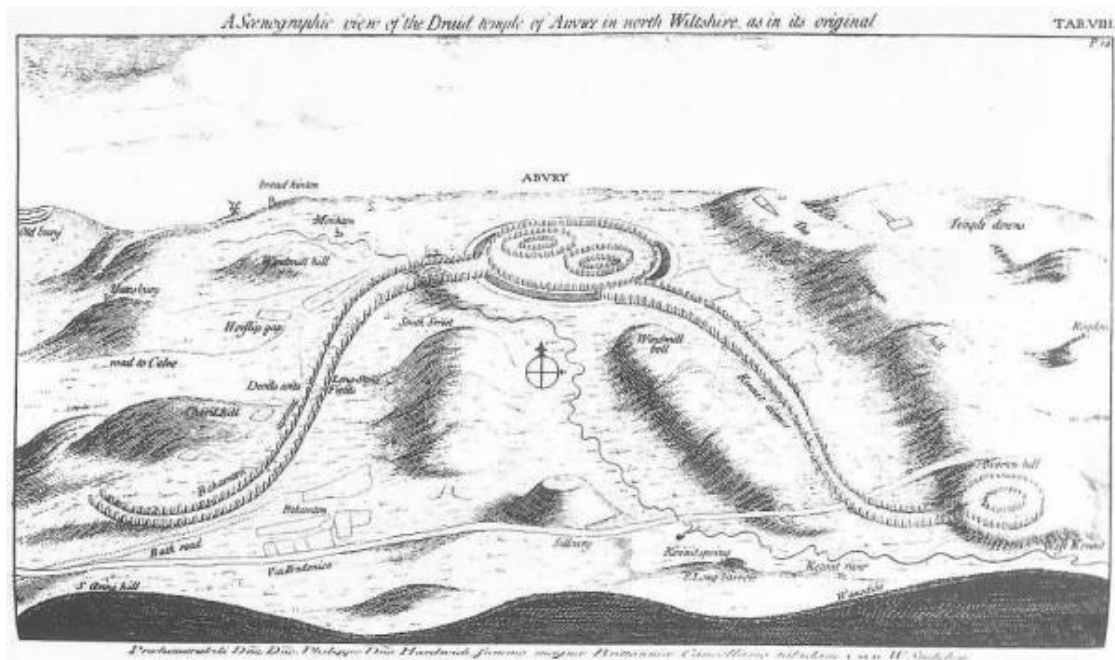
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Note 25 --

The iconography of the barrows includes the circle, the wings at the edges (seen in some 300 Irish barrows), the hill or mound (often crenellated, common in barrows from Ireland to China), and the connecting stream (as causeways). The interior structure of barrows is remarkably similar over a large geographic area and a time span of a thousand years or more.

A double-armed cruciform shows up as the plan for the interior space in barrows from Ireland, England, France, Portugal, and the temples of Malta. Changes in construction, such as the use of slabs instead of megaliths, are due to availability of local materials or improvement in construction techniques. Some of the changes in the form and interior plan of the barrows, as in going from a cruciform to a galley arrangement, might be due to actual changes in the signs in the sky or due to local interpretations. But I would suggest that once a rational association is made to an arbitrary symbol in the sky, it remains in use - - despite changing evidence -- for a long period of time.

Some of the symbols in the sky changed after 3100 BC. Circular monuments are no longer constructed after another 300 years (with some exceptions), but, in imitation of the mountain-like glow level plasma discharge from Earth to Mars, pyramidal structures come into use (but only after 2600 BC, about a hundred years after the last of the 10 "visits" by Mars). The causeway remains in use in Egypt as the access to the desert grave sites, mastabas and later pyramids, always placed on the east or southeast side of the pyramid or mastaba -- reflecting the visible location of the plasma stream -- and always including a bend in the road. In Egypt boats are buried beside the pyramids. The symbolism of access to heaven via a heavenly river also dates, of course, from the "Era of the Gods," as does the use of a valley building where the body is prepared before travel up the causeway to the grave site, reflecting the mound or mountain seen at the northwest horizon.



[Image: Avebury, sketch by William Stukeley, AD 1720.]

A wood-post building located within the smaller henge, known as "The Sanctuary," located at the far southeast end of the causeway to Avebury henge, is completely equivalent to the valley buildings of the Egyptian pyramids. Within a circle of standing stones was a wood structure which was replaced up to five times with a building of the same dimensions. Described in *British Archeology* (Feb 2000).

A second causeway leads out of Avebury toward the southwest (more or less, the end is not well defined) ending near two large long-barrows, which were apparently closed up by the builders of Avebury. Together these may have represented the earlier Peratt column and two of the southern ball plasmoids. The southwest causeway is today only half the length of the southeast causeway. We would actually expect the southwest causeway to be much longer. William Stukeley visited the site in the 1720s and recorded (or at least suggested) a much longer southwest causeway. Almost all the stones were destroyed and removed by Christians.

There is a third and fourth long-barrow directly south of the Avebury henge (West Kennet and East Kennet), and further south than the two mentioned above. Also directly south of Avebury is Silbury hill, a huge man-made hill of chalk.

The remnants of a secondary circle of stones has been found at the east terminal of the causeway leading out from Stonehenge at the river Avon, today called

Bluehenge. The impressions of 27 (not 28!) of the blue stones, later moved to Stonehenge, have been unearthed.

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Note 26 --

Considering how slowly an electric charge "leaks away" to space, it might not be correct to say that the atmospheric electric charge dropped considerably after 3147 BC. It is more likely that the Earth experienced a large drop only in 2349 BC, when Venus made electric contact. More on that in the following two chapters.

The blue stones of Stonehenge were re-installed at a structure at the end of the causeway (called Bluehenge) leading out from Stonehenge toward the northeast, which bends to continue east and then southeast, meeting the river Avon. This has only recently been detected through stone chips left behind. The blue stones were later returned to Stonehenge.

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Note 27 --

The first temple at Jerusalem, built in about 950 BC, was oriented 6 degrees west of north, which is equivalent to 6 degrees north of east in the chart below. For Jerusalem the second temple (525 BC) was correctly oriented east-west.

Temple orientations, although admittedly late in antiquity compared to the date of 3147 BC, were tabulated by Rafael Kazmann, in "On the Orientation of Ancient Temples and Other Anomalies," in *Aeon* (1990), from published data. Kazmann was convinced that these temples were meant to have the first sunlight on the equinox fall into the center of the temple (as was reputed to be the case for the first temple at Jerusalem, by Soloman). From this Kazmann proposes various shifts of east geographical pole.

Thus we are met here with azimuthal angles, the number of degrees clockwise from north. This is the published list sorted by angles north or south of east as follows:

location	temple	deg:min	direction	date
Olympia	Jupiter	7:22	N of E	790 BC
Jerusalem	Jehovah	6:0	N of E	925

Girgentl	Juno Lacinia	6:0	N of E	690
Megalopolis	Castor	4:0	N of E	400
Olympia	Juno	3:16	N of E	1445
Megalopolis	Hercules	0:0	N	470
Tegea	Minerva	1:23	S of E	1650
Rhamnus	Nemesis	1:24	S of E	787
Rhamnus	Themis	1:29	S of E	1092
Lycosura	Despoina	2:11	S of E	650
Corfu	Kadarki	4:39	S of E	875
Selinus	Unknown	4:52	S of E	795?
Ephesus	Diana	5:21	S of E	715
Athens	Nike Aptersos	5:43	S of E	1130
Thebes	Cabeiron	6:27	S of E	1160
Athens	Minerva	9:05	S of E	2020
Megalopolis	Jupiter Sot.	9:42	S of E	605

The orientations listed above might represent the minor axis of temples. North of east is then the same as west of north. The small deviation of one or two degrees listed for south of east can be taken as wholly equivalent to a true north-south axial direction. The measures of four to nine degrees south of east obviously point to South America.

The Ka'aba at Mecca is also oriented to the northwest.

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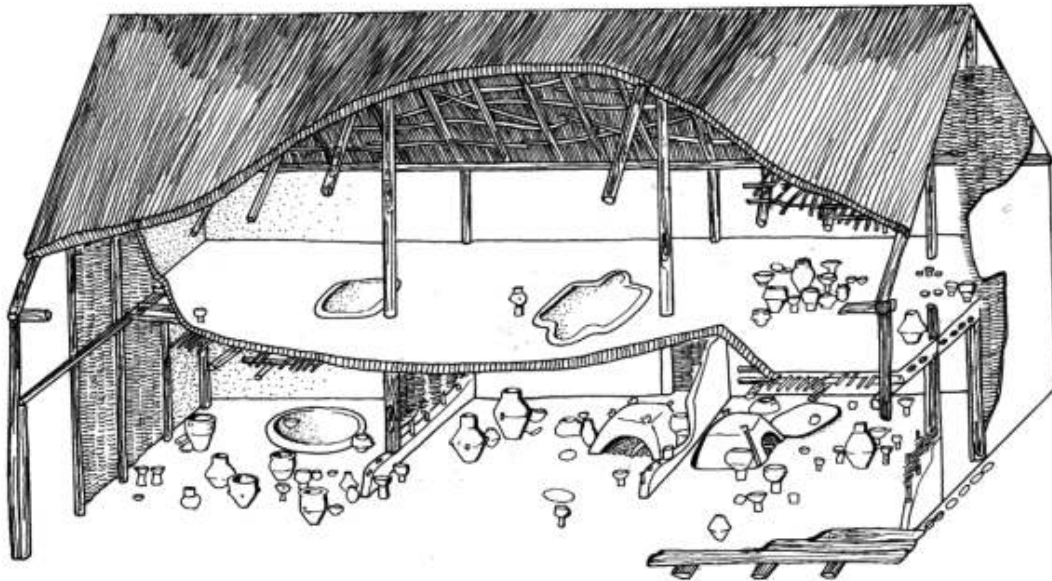
Note 28 --

Book 11 of the *Chilam Balam* suggests that Mars, in its descent, disappeared behind the vapor dome seen in the far north (to "drill holes in the mountain"). Another text states that Mars well-warmed the pedestal -- the base -- of the mountain.

This is of course a view from a very low angle -- from a latitude of 10 or 20 degrees north -- totally unlike the view from Egypt at a latitude of 30 degrees or England at 50-degrees, and also displaced longitudinally by a quarter turn of the globe. As Mars approached Earth in line with the polar axis, for Egypt or England it could easily have disappeared from view behind the dome of vapor rising above the contact point in the North Atlantic, but from the vantage point of Mesoamerica it would have been seen adjacent to the vapor dome.

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Note 29 --



[Image: Vinca temple, Serbia, 3800 BC. After "European Neolithic Temple Buildings" (in Finnish) jumalasuomi.tripod.com.]

A collapsed (burned down) second story temple room has been found and identified among Vinca archaeology in Serbia (dated to about 3800 BC).

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Note 30 --

Marinus van der Sluijs notes the following with respect to the localization of mythology:

"The fact that people made so much effort to locate the gods of a mythical past in their own lands points to the suggestion that the gods were no longer present at the moment the transfer was made. And this is a conclusion rarely made, if not never before, but nevertheless quite much in line with the whole idea of localization 'überhaupt.' In identifying the nearest mountain as the cosmic mountain of the gods, the nearest river as the river of the gods, and any tree similar to the cosmic tree as the tree of life, the ancients literally 'brought the gods down to earth' and would have succeeded, to their own satisfaction, in recovering the age of the gods."

-- [\[http://www.mythopedia.info\]](http://www.mythopedia.info)

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Note 31 --

Egyptian temple plans are a reflection (a mirror image) of the signs in the sky, rather than a "projection." A plan based on a projected image is used in the construction of henges in Europe. This disconnects Egyptian culture from Western European Neolithic culture, except for the causeway design of European henges and Egyptian mastabas and pyramids, which are in all cases on the southeast side.

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Note 32 --

The reputation as the "Sea of Death" apparently dates from remote antiquity. The mass of decaying plant material at the bottom of the Black Sea still releases bursts of methane gas today, which dissolves into the water on rising. This reduces the density of the seawater at the surface -- enough to suddenly sink ships.

The surface current of the Bosphorus flows toward the Mediterranean. A much lower current carries salt water into the Black Sea. A weighted basket hung off the boat into the lower current will drag the boat toward the Black Sea. This also seems to have been known since remote antiquity.

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Note 33 --

Gunnar Heinsohn writes:

"The first truly comprehensive compilation of flood sagas was written a hundred years ago. From Babylonia to Haiti, it listed eighty-eight texts. Forty appeared to be genuine pieces created independent of each other. Only twenty myths of this collection seemed to have traveled, that is, were borrowed via diffusion. The rest were duplicates only exhibiting minor variations from other stories found in the same era. A decade later, seventy three genuine stories could be reported. Soon, the number of flood stories swelled to two hundred and sixty eight. Ten years later, five hundred deluge myths coming from two hundred and fifty nine peoples or tribes were estimated. Special studies were devoted to parts of the world of which the flood myth was claimed to be absent by the pioneering researchers: Northern Asia, eventually, yielded twenty one texts. In Africa, two dozen myths could be located."

-- Gunnar Heinsohn, at the Conference *CATASTROPHISM 2000*, University of Toronto, Ontario, 1990.

Egyptian references to a massive flood are found in the Pyramid Texts as threats made by the dead pharaoh after he reaches the northern stars. Actually, as Leonard King wrote in circa 1917:

"The nearest Egyptian parallel to the Deluge story is the "Legend of the Destruction of Mankind", which is engraved on the walls of a chamber in the tomb of Seti I. The late Sir Gaston Maspero indeed called it "a dry deluge myth."

"The narrative ... betrays undoubted parallelism to the Babylonian and Hebrew stories, so far as concerns the attempted annihilation of mankind by the offended god, but there the resemblance ends. For water has no part in man's destruction, and the essential element of a Deluge story is thus absent."

-- Leonard King *Legends of Babylon and Egypt* (1918)

The Egyptians recorded a flood-like event, but it involved the slaughter of men by the Goddess Hathor. She is calmed down by the Gods with the application of 7000 jars of red dyed beer, simulating human blood. The stories are found in New Kingdom tombs, after 1500 BC, and reflect the event of 2349 BC, not of 3147 BC.

[\[return to text\]](#)

Note 34 --

The rains mentioned by Apollodorus equate his flood recollection to 2349 BC, not 3147 BC.

The Columbian "bearded man" is Saturn with a plasma instability of a series of toroids, looking like a puffy beard. This is the same fake beard also worn by the pharaohs of Egypt, and found on images in Mesopotamia (although the beard is added to a God who is obviously Jupiter). This Columbian snippet, which ties the Moon to a flood, also describes the flood-like event of 2349 BC. The Moon showed up near Earth at that time.

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Chapter 16: The World Flood.

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The Flood of 3147 BC

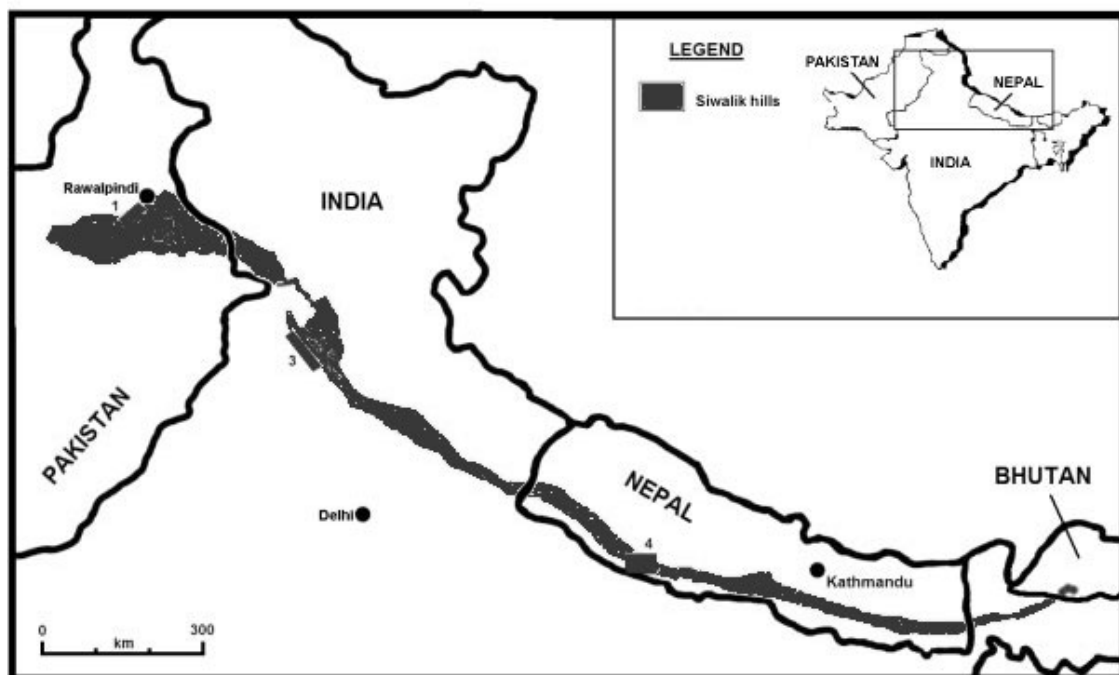
The flood of Gilgamesh was an extraordinary flood, consisting of a series of worldwide tsunamis. The apparent cause was the removal of Saturn from above the North Pole. The sea waters which had run off the pulled-up crust at the North Pole and collected at the South Pole where the crust was drawn into the interior of the Earth, had been held there for 7700 years, were suddenly released. [\[note 1\]](#)

Those waters must have stood miles high in the south polar sea, and to a lesser height, but in much greater volume, in the South Atlantic, the South Pacific, and the Indian Ocean. At the same time, the sea level at mid-latitudes might have dropped hundreds of feet. No other flood in later times would approach the devastation of the flood of Gilgamesh, and the retellings of all later floods will always refer back to the events of 3147 BC.

Many of the flood stories deal with rain. Certainly the Black Sea flood of 5600 BC, which burst forth at a rate of over 14 million gallons per second, would have stirred up a lot of mist and, on hitting the warmer atmosphere of the Black Sea region, would have resulted in continuous rains. To the victims it looked like rain caused the rising waters. But it is much more likely that the rains are associated with the later catastrophe of 2349 BC. The early Sumerian flood myth does not include rain.

A consideration of deposited layers of materials worldwide would make it look like the flood of 3147 BC might have had the following sequence:

- The flood event consisted not just of waves of water traveling the length of the globe, but also included the action of a releveling of seas worldwide.
- The first release of water from the south polar regions, the South Pacific, the South Atlantic, and the Indian Ocean would have sent waves north with only a few locations that had a clear path as far as the Arctic Ocean. In many locations the water was forced to sweep across the continents.
- India and Australia were inundated by the northbound waves from Antarctica and the Indian Ocean. The contents of the South Asian continental shelf and the lowlands were piled on the south slopes of a mountain range which was later overridden by the Himalayas. A secondary rebound of this wave probably struck across Australia from the northwest.
- India was wiped clean of people and animals. These were piled up at the southern foothills of the Himalayas (the Siwalik Hills). As is clear from the deposition of layers of mud and silt interspersed with the accumulation of trees and the bones of jungle animals, there would have been a dozen separate gigantic waves of water from the south. [\[note 2\]](#)



[Image: Siwalik hills along the northern border of Pakistan, India, Nepal, and Bhutan. After Parth Chauhan.]

- From the south Pacific the tides would have swept over Southeast Asia and China. In Siberia (as in North America) the first waves of water from the

south rolled across land ripping out trees and sweeping herds of grazing animals ahead of the water. There was a pile-up of bones and broken trees when the Arctic Ocean was reached. The Arctic Ocean today holds much more muck than any of the other seas.

- The salinity of some lakes can be traced to the flood of 3147 BC, including Lake Bonneville and the Caspian sea. Seals in Lake Baikal in Siberia and squid in Lake Onondaga in New York State also have no other explanation. There are numerous other instances of displaced marine species. Remains of whales have been found in the Andes, in the Sahara, and in the state of Michigan.
- The equatorial bulge, which amounts to about 10 miles, was no obstacle for the initial wave from the south, which probably stood miles high, as it headed toward the north pole.
- The Pampas of Argentina were scoured clean and the soil consolidated and deposited in valleys. Eastern Brazil and the West African bulge were similarly attacked by water from the south. We see this also where the low-lying Southeastern United States juts out into the Atlantic. The Western United States, which narrows the Pacific Ocean, was breached by the first waves from the south. The water rushed over the coastal mountains to drop into the valleys beyond.
- At the Bering Straits the rebounding Pacific waters had no oceanic escape, and swept over Alaska and Western Canada, as well as Northern China (Siberia). In these locations we often find many feet of silt and loess, with only a thin layer of black soil (humus) at the top. The fossil content of Alaskan river valleys has always astounded archaeologists with its content of broken bones and splintered wood -- many from temperate and tropical areas. [\[note 3\]](#)
- Where the waves had lowered because of a wide ocean, as in Southeastern United States, we find an admixture of marine organisms with scoured remains of plants, trees, animals, and soil. Elephant remains have been found in the Southeastern United States, mixed with unfossilized (closed) seashells. Lower secondary waves often deposited marine species above the layers of land animals and plants.

Where was it safe for humans? Although the initial tsunamis overran coastal mountains and even land glaciers, inland away from the coasts and on higher

ground would have provided safe places -- the east side of the Andes, and the central regions of Asia, Europe, and Africa. Coastal areas which run in a north-south direction were also safe, for the waves would not be forced inland. But any coastal areas which stood in the path of the waves would be overrun by water. In some regions, we can surmise, a wall of water ran for hundreds of miles across relatively flat land, building giant dunes, as in areas of Australia and the Western United States.

The Mediterranean regions, surrounding an inland sea, were little affected, as also the upper reaches of Mesopotamia and Anatolia. The waters headed north from the Indian Ocean for the Red Sea and the Persian Gulf would have battered Somalia and Oman respectively. But the Red Sea and the Persian Gulf are additionally protected by their pinched southern necks. The Sumerians certainly had flood myths, but the Egyptians do not.

Recent tsunamis due to submarine earthquakes have been one hundred feet high on reaching a coastline. (And travel in excess of 400 miles per hour.) The damage (in that case) is mostly limited to coastal areas and the waters flow back to the oceans immediately. They certainly would not "cover the Earth." But simultaneous gigantic worldwide tsunamis miles high would be an extraordinary disaster. [\[note 4\]](#)

In a number of deluge tales the Gods felt remorse for the flood they had brought and set a sign in the sky as a promise not to do so again. In the *Epic of Gilgamesh* the Goddess Inanna (Venus) raises her necklace of lapis lazuli so as to never forget the flood. Noah receives the sign of the rainbow. I have never thought that God would set a rainbow as a sign in the sky. With the later flood of 2349 BC (Noah's actual flood), the sign in the sky was the Moon, but as likely it was the appearance of the south (and north) polar plasma plumes, which I will discuss below. In the Babylonian *Enuma Elish* (of about 1700 BC), Marduk (Jupiter) plants his war bow in the sky to commemorate the flood (the Noachian flood). This vertical "bow" is today confused with the horizontal "rainbow." [\[note 5\]](#)

It was Jupiter's approach which caused the flood -- by displacing Saturn away from the location of Earth. On the first instance after the flood, and as the flood was subsiding, the Earth was located at a considerable distance below Saturn as well as below the nearing Jupiter. The "mountain" of the flood stories, where Noah moored his ark after the waters subsided, is the lower plume of plasma of Jupiter, directed out from the region of Jupiter's south pole (which is the north

magnetic pole). The mountain was colored green (as we know from Egyptian depictions of Osiris, as well as the *Popol Vuh* of the Quiche Maya). On top of the mountain of plasma was Jupiter enclosed in a coma, but lighted by the Sun. With the Earth located below the orbit of Jupiter, only the bottom crescent of this was seen. This was the mountain and the ship of Noah, recorded in hundreds of flood myths.

After his ship landed on this mountain, Noah released a raven to test the waters but the raven just flew back and forth and did not return. Noah next released a dove. The dove returned the first two times, but not the third. The details occur in the Bible, attributed to the flood of 2349 BC. Nearly the same events were recorded in the Sumerian flood epic, written a few hundred years earlier. The raven is the release of the darker Uranus into a larger orbit. Uranus was known as a bird from thousands of years earlier (and as a duck), and the peculiar tilt of its axis of rotation may have shaped its coma into a winged creature.

At this time the Earth was on an inner orbit, while Saturn, and Jupiter afterward, completely outside the orbit of Earth, were both receding from the Sun. Over the next few revolutions of the Earth around the Sun, Uranus would have been seen alternately on the east and the west of Jupiter, looking like a raven flying back and forth aimlessly, first approaching Jupiter (which still looked like a mountain) toward the east, and then moving away, but on the other side of Jupiter.

The light-colored Venus, the dove, was initially seen moving from an from behind Jupiter on an outer orbit, carrying a green olive branch to Noah (on the mountain of Jupiter). This is the plumage of Quetzalcoatl. The green olive branch, or quetzal plumage, is a plasma tail of ionized Hydrogen. Venus soon disappeared from view as it rounded the Sun.

In the Sumerian *Epic of Gilgamesh*, on the seventh day after the flood, Utnapishtim sent out successively a dove, a swallow, and a raven; only the raven (Uranus) found a resting place and did not come back, that is, the raven soon (within two years) disappeared into deep space. He was not seen again. The dove (Venus) and the swallow (Mercury) do return, for they start to orbit the Sun. However, my suspicion is that Mercury traveled with Saturn until Saturn reached the asteroid belt (about 80 years later). In that case it may be the Moon which exhibited the split tail of a swallow (since it has no magnetic field) and a sweeping bow shock. The Moon had an atmosphere until 2205 BC. The Moon orbited the Sun at some distance from Earth's orbit.

The Bible and the *Epic of Gilgamesh* record that Noah and Utnapishtim, respectively, offered a sacrifice to God (or the Gods) after leaving the ark. This fire, located on the mountain, is probably the sight of the Sun-lit side of Jupiter, but now seen from a much greater distance and at a higher elevation than before, as Jupiter continued to recede away from the Sun, seen in red, with the smoke from the fire seen as the much lesser wisps of plasma extending from the upper region of Jupiter -- the upper plasma chalice form.

The Gods, reads the *Epic of Gilgamesh*, crowded like flies around the smoke of the fire. These are the satellites of Jupiter buzzing around the planet. I do not know the disposition of Saturn, for nothing more is ever heard of this planet, although all peoples everywhere continued to be able to locate Saturn in the sky as a pinpoint of light.

In Egypt, almost unaffected by the flood (the Delta region flooded), and in Mesopotamia, the sight of the approaching Jupiter, seen initially in the north with horn-like plumes above its coma and a massive mountain of plasma below, was understood as the "Bull of Heaven" who wrecked the city of the Gods. He is shown as bulldozing city walls (and people) on Egyptian cosmetic palettes between 3100 BC and 3050 BC.

Jupiter had been known since the clouds of chaos lifted thousands of years earlier. Because Earth was located far below Saturn, and thus below the ecliptic, Jupiter had been represented as a pair of up-pointing horns, a crescent, when traveling inside the orbit of Earth on the sun-side (and as an oval "egg" shape when located outside the orbit of Earth).

The event of 3147 BC appears to have been an all-encompassing disturbance. The stories only attest to the flood, but there is also a sudden change in the climate and the start of a cooler and dryer period. The mild and wet days of the "Era of the Gods" never return and further glaciation stopped suddenly. There certainly is evidence that the length of the year changed. Civilization -- cultivation of grains, trade among regions, and even the development of writing -- came to a sudden halt, and regressed. In Mesopotamia the sudden halt of civilization is known as the Jemdet Nasr period.

What caused the catastrophe of 3147 BC?

The Battle of the Gods

The catastrophe of 3147 BC involved more than the disappearance of Saturn from the north sky. It involved the near "collision" of the group of 7 planets with Jupiter. What most likely happened in 3147 BC is that Saturn, together with Earth, Mars, Mercury, Venus, Neptune, and Uranus, "ran into" Jupiter, which was then located probably at 0.7 AU from the Sun. (See Appendix B, "The Celestial Mechanics," where this information is derived.)

Possibly some 3 million years earlier, Saturn had assumed a closer orbit around the Sun as a result of a remote electric shock between Saturn and Jupiter -- which would have been attractive, thus bringing Saturn closer to the center of the Solar System. The resulting new orbit of Saturn was an ellipse, with aphelion (the furthest distance from the Sun) beyond the orbit of Jupiter. Saturn would annually return to cross Jupiter's orbit. In 3147 BC Saturn reached this location just as Jupiter also arrived.

What I have characterized as a "collision" above, should be understood as an intersection of the plasmasphere of these planets. It could readily be suggested that when the plasmaspheres of Jupiter and the Saturnian planets connected (at an estimated distance of perhaps 8 million miles), it instantly reformed to a different shape to include both giant planets, but in the process locked out the small planets Earth and Venus. Located far below the south pole of Saturn, Earth was not likely to have been within 3 million miles of Saturn when Jupiter closed in, and escaped easily. In Appendix B, "The Celestial Mechanics," the estimate that Earth at that time was located about 3 million miles below Saturn is derived.

We can also again perform an analysis in terms of the gravitational sphere of influence. Tom Van Flandern notes that a sphere of influence would be drastically reduced in size (for smaller objects) with a change in the mass to the primary (which doesn't happen), or the proximity of another large body (like the Sun). Under that condition a planet could lose its remote satellites in closing in on the Sun. This also doesn't normally happen, but had happened repeatedly for Saturn over the last 600 million years.

The gravitational sphere of influence of Jupiter, measured as 100 times the planet's diameter, would be about 8,700,000 miles. In the proximity of three other large planets (Saturn, Neptune, Uranus), the gravitational sphere of influence might have been reduced to under 3,000,000 miles. The same would have happened to Saturn and its companion planets (Saturn would have had an initial sphere of influence of 7,000,000 miles.) The change in the diameter of the

gravitational spheres of influence of the large planets would seem to be the cause for the release of Earth and Venus from the Saturnian stack, and the avoidance of capture by Jupiter.

Earth would have changed its orbit as soon as it was released from the grip of Saturn, again placing the Sun gravitationally at one of the two nodes of its orbit. This accounts for the change in perspective on Jupiter (and on Saturn, as recorded in Mesopotamia and Mesoamerica). It also accounts for the fact that the plane of Earth's orbit today still has the largest divergence from the Sun's equatorial, because Earth was furthest below the orbits of the other planets.

Earth and Venus thus easily escaped from the encounter, although I haven't shown this for Venus. They were each cast off by the near collision into separate elliptical orbits of different elevation, with the greatest vertical separation between their orbits at aphelion. Both Earth and Venus would continue to return to the orbital location of the "collision" in the future.

It is uncertain how Venus managed to escape, but it is likely that Venus at the time of the collision was orbiting around the mass centroid of Uranus, Neptune, and Saturn, and was thus located far above Saturn, and most likely at the level of Neptune. If, at the time of the collision, Venus was located on the side away from the downstream plasmasphere of Saturn and Jupiter, it may have been locked out of the reformed plasmasphere. In addition, entry of a potential satellite into the gravitational sphere of influence of another planet is a rather iffy situation. The velocity of the potential satellite has to be of a certain value. Otherwise the satellite will either crash into the primary or be released from the sphere of influence.

Mars and Mercury remained in the reformed plasmasphere sphere of Saturn, since they were close to Saturn (probably within two million miles) and likely at a matching potential. Mars probably was part of the Saturnian system since about 30,000 years ago, Mercury had been there since 17,000 BC. Both remained with Saturn and were apparently only released 80 years later, when Saturn entered the asteroid belt and its coma and plasmasphere shrank considerably. (See Appendix A, "Notes on Chronology.") If we can trust the *King List* for the "kings before the flood," it looks like Mars had completed a descent to Earth some 80 solar years earlier, and was closing in on Saturn. (The last descent is the only one in the *King List* which is not a whole interval of 32 years.)

Titan, larger than our Moon or Mercury, remained in orbit around Saturn, as did the other satellites of Saturn and Jupiter, and probably the satellites of Uranus and Neptune. The counts of satellites of Saturn and Jupiter noted in antiquity (as, for example, from Egyptian, Mesopotamian, and Mesoamerican sources) match the counts of satellites today -- barring tiny rocks and extremely distant satellites discovered only in the 20th century. In the last century it has become known that many primitive people knew the number of satellites of both Jupiter and Saturn. They are also depicted on Mesopotamian seals. Egyptian funeral practices identify seven large (visible) satellites of Saturn as the "Helpers of the King" or the "Sons of Osiris" known since before 3147 BC. Today Saturn still has seven large satellites which can be readily seen with binoculars. [\[note 6\]](#)

Neptune and Uranus, the two large planets above Saturn, were cast into much larger orbits. Uranus is reflected on briefly in the Sumerian flood epic and then never taken note of again. Uranus is one of the Titans "banished" by Zeus (Jupiter) in Greek mythology. "Banned" because they preceded Jupiter into the far reaches of space.

After 3147 BC we have a report of extended combat between two or more Gods. As Jupiter chased Saturn, and perhaps Neptune and Uranus also, the planets could be seen to battle over supremacy, resulting in a massive fireworks display as streams of plasma played across the sky. Jupiter had developed a plasma tail outpouring at the first moment of its removal from its normal orbit.

The image of Jupiter in the south skies would have been stupendous in size. A glowing round globe -- the coma surrounding Jupiter -- stood about halfway up into the sky from the south horizon, traveling on the ecliptic. Below the globe was a green mantle which extended all the way to the horizon below, and above were what looked like a head with a feather headdress or horns. The horns are formed from the upper flower shaped coma, where only the denser plasma at the edges was seen. But more noticeable was the equatorial toroid of glowing plasma within the coma of Jupiter. Of this the left and right cross section -- where the toroid was most dense -- stood out as two eyes staring back at the humans. More on this further below.

We do not know how large the coma of Jupiter was originally, but later estimates suggest a diameter of three million miles, more than three times the diameter of the Sun, but of course located much closer to Earth at first. The coma could initially have occupied 30 or 45 degrees of the sky (at distances of 4,000,000 or 6,000,000 miles). From later snippets of the Egyptian *Book of the Dead* we often

get the feeling that the Gods of Egypt were absolutely huge in size, although far removed. This is an instance of the giant Gods. But the images in the south skies receded rapidly, diminishing in size steadily, and especially since Earth also continued away from the "impact" location much faster than the travels of the other planets.

The large outpouring representing the mantle was the plasma plume at Jupiter's north magnetic pole, which is located at its south (lower) geographic pole. From a number of sources it is clear that it was colored green -- which is how the mummified Osiris is nearly always depicted. (At a much later date, both the coma surrounding the planet and its lower mountain form were red instead.) Vedic sources of uncertain dates recall a green body for the God but wearing a red mantle.

A much smaller funnel-shaped plasma appeared above Jupiter, suggesting horns where the edges were most dense. In this form, this was the "Bull of Heaven" who destroyed the home of the Gods. Colored green and mostly immobile (as an outer planet, Jupiter would have moved through the skies much slower than Earth), Jupiter was identified as the standing mummified body of Osiris. His worship, however, did not seriously start up until the end of the fifth dynasty (circa 2350 BC), following, in effect, shortly on a time span when "Re" (who is also Jupiter) was worshiped again -- actually, directly after the appearance of Jupiter at the fall of the Absu in 2349 BC. This sequencing of what and who were seen in the skies after 3147 BC will be addressed again in a later chapter.

Like the ithyphallic God Min, statues of which, dating to 3100 BC, were found in the delta, Osiris is frequently depicted with an erect penis. It seems strange to have a plasma extrusion sticking out at right angles from the mantle (or what would later be known as a mummified form). Of course this would be along the direction of the plane of the ecliptic, so we can suggest the plasma tail of a comet or minor planet. I would elect "planet" for in order to be seen at right angles to Min's mantle, the tail would have to extend along the ecliptic. In 550 BC Herodotus, on the basis of what he learned from the priests at Sais, calls Menes, the founder of Memphis and the first king of the first dynasty, Min -- the name of the ithyphallic God current in the delta since circa 3100 BC. Menes is listed both as a God and as a human in the Turin Papyrus.

Whatever it was that formed the erect penis of Min and Osiris, it could not have existed within the lower plasma plume of Jupiter and simultaneously penetrated

it, since a plasma tail directed away from the Sun represents a shadowing of the Sun's electric field. What are we looking at?

I suspect was Mercury. Mercury was the star between Saturn and Mars in the previous era: a small planet with a magnetic field (even if minor), and an atmosphere (almost completely gone today), and also today covered only by fresh electric scars.

We are probably looking at a visual superposition of forms -- Jupiter's mantle with Mercury in front. The location is possible, since Mercury was an outer planet until 686 BC. Thus Mercury could have been seen against the background of Jupiter's mantle. They may have been seen 3 degrees separated from each other. The orbit of Jupiter is inclined 1.3 to the ecliptic; the early orbit of Mercury (before 686 BC) was likely inclined 2 to 2.5 degrees to the ecliptic (this is my estimate).

We do not know how long this lasted, or when Mercury disconnects from the image of Jupiter, but the planet obviously came to represent the lost genitals of Osiris. The details of all this are very obscure. The superposition might have happened repeatedly, as Jupiter and Mercury passed each other every two years. In this manner Osiris would have repeatedly shown an erection.

The battle between the receding planets likely occurred some safe distance from Earth, but close enough to have been clearly *seen*. Plato's Atlantis, the land held up by the giant Atlas, sank into the sea in one day and a night. That is an accurate description of the event as the toppling of the land in the north, which was seen sinking into the Absu (the sea) the following night. [\[note 7\]](#)

There are detailed Mesoamerican depictions of the globes of Jupiter and Saturn -- Jupiter shown with its bands and Saturn with its rings. The banded appearance of Jupiter was known in Polynesia also. The number of visible satellites of Saturn and Jupiter are accurately counted as families of Gods by many diverse peoples.

From Hesiod we have the account of Zeus (Jupiter) in a battle over supremacy with a generation of older gods, Kronos (Saturn) and the Titans, the giant trans-Saturnian planets Uranus and Neptune. When, in the 19th century AD, these two very large planets were discovered beyond Saturn, they were named according to Greek mythology. In Greek mythology Saturn and the Titans were banished to the outer reaches of the Underworld -- the zodiac in the south sky -- by the new Chief of the Gods. The losers in the battle could be seen diminishing in size, to

eventually become mere pinpoints of light, and lost track of. Saturn, however, was tracked and accounted for during all of antiquity, on every continent, despite the fact that it is indistinguishable from a star and takes 30 years to circle around the zodiac. [\[note 8\]](#)

We should also not underestimate the extent of the battle, much of it "fought" with flung thunderbolts. Hesiod's description of Zeus is probably an understatement.

*"Hurling his lightning:
The bolts flew thick and fast
From his strong hand
Together with thunder and lightning,
Whirling an awesome flame."*

-- Hesiod, *Theogony*

Hesiod's writings are a recollection made 2300 years later. But even later than this there are Greek and Roman writers inquiring into the mechanics involved in these interplanetary lightning strikes. The last lightning strikes between planets (between Mars and Earth and between Venus and Mars and the Moon), were witnessed in the 8th century BC. This was followed by one more massive bolt (and additional lesser bolts) from Jupiter to the Sun in 685 BC. Planetary thunderbolts were still being discussed by Greek philosophers 300 years later. [\[note 9\]](#)

Hesiod describes two distinct battles, the first with the Titans, the second with assorted monsters. The first battle is frequently recast in mythology as a conflict between the chief God and a dragon or snake. Jupiter (Zeus, Marduk, or other primary God) hurls a spear (or trident) down the throat of the snake to kill it. The attacking snake might have been Saturn if it had developed an enormous tail of plasma streaking away from the direction of the Sun, and thus seen horizontally, that is, in the plane of the ecliptic. But it is unlikely. The lack any display of a plasma tail, and as a result the lack of any mythological forms of this sort, can be attributed to the large positive charge of Saturn.

I think this event, involving a snake or dragon, is probably misplaced. Mythology tends to fuse separate celestial experiences into singular events. (As do mythologists.) I think the battle with a snake or dragon should be placed in 2349 BC when Venus makes electric contact with Earth. The trident could be assigned to the era following directly on the end of the "Era of the Gods" when

Jupiter hurdles plasmoid thunderbolts (described below) at the Titans and obliterates objects in the asteroid belt. The trident thunderbolt *per se* clearly dates to 685 BC, and is reproduced in sculptures, murals, and coins after that date.

... monsters of the asteroid belt

A snake or dragon was seen at one time, however, and it was reputed to have had an enormous head. David Talbott summarized the curious worldwide fusion of a wildly maned lion and snake imagery as follows:

"Why did ancient symbolists so frequently combine serpent and leonine features in a single monster? We see this juxtaposition in the Greek Chimera, with the head of a lion and a tail in the form of a serpent. The Chinese 'lion' has the countenance of a dragon, while the Chinese 'dragon' possesses a distinctively leonine mane. The Egyptian Goddess Tefnut appears as the Uraeus serpent, but in her terrible aspect becomes a giant lion head, with 'smoking mane.' The Mesopotamian dragon Labbu was a snake, but its name means 'lion.' The Sumerian Goddess Inanna was the 'lioness' of heaven, but in her rage became a fire-spitting serpent or dragon devastating the land. In Orphic theology, the god Phanes was born from an egg as a winged snake, though he grew the head of lion. 'Snake of the Lion' was the name of a Mixtec creator god."

-- Thoth Newsletter (2002), <http://othergroup.net/thoth/>

I think much of the descriptions here applies to events of 2349 BC, which will be described in following chapters. But just as the lion-serpent image is described as consisting simultaneously of water and fire, so any plasma discharge in arc and glow mode will take on solid-looking shapes and must have struck terror into the hearts of the humans watching the battle from the vantage point of Earth. The plasma thunderbolt exchanges, however, were diffuse enough to leave the rings and satellites of the planets intact through the confrontations.

These descriptions, such as the monsters listed above, may have their genesis in the movement of the four planets through the asteroid belt, and the further electric discharges from Jupiter to the asteroids, and thus represents the second battle with the misshapen monsters described by Hesiod. Evidence of the conflict is shown in the scars, burns, and "impact craters" covering every side of

the thousands of remaining asteroids. Every asteroid (or comet) that has ever been inspected by a space satellite has been found to be pockmarked with these craters, sometimes nearly equal to the diameter of the target bodies. The same circular "impact craters" exist by the millions on the Moon, Mars, Mercury (but due to later electric contacts), and virtually every satellite of every planet. The electric arcing must have launched billions of tons of dust into the surrounding space, making all of the ecliptic glow with light reflecting off dust (universally described as a yellow river or golden highway of the Gods), and causing many of the thousands of asteroids to start exhibiting cometary comas and tails in the suddenly altered electric conditions of the asteroid belt. [\[note 10\]](#)

It has been proposed by some that the asteroid belt is the remnant of the battle between Jupiter and Saturn. However, the breakup age of the asteroid belt dates from 3.2 million years ago with a spread of values dating to 40 million years ago. Some date to 300 million years ago, or more. Thus the belt existed long before 3147 BC when Jupiter and Saturn (and Neptune and Uranus) started to move through the asteroid belt *en route* to their present locations at 5.2 AU and 9.5 AU.

The "impact craters" are anode burn marks caused by plasma discharges and by interplanetary lightning bolts -- electric discharges in arc mode. With an increased level of dust in the ecliptic, due to the initial violent interaction between Saturn and Jupiter, plasmoid lightning bolts were hurled and traveled very long distances. The plasmoid bolts (which disconnect from the originating body, and then contract to look like a contained object hurtling through space) cause circular depressions of molten rock. The shapes of these plasmoid bolts are depicted in statuary and as models worldwide as late as the beginning of the current era. They are shown as twisted shafts with a ball and trident at both ends. [\[note 11\]](#)

Continuous plasma arcs, composed of rotating rope-like electric currents (Birkeland currents), on the other hand, leave flat bottomed round "craters" generally with raised centers and perforated edges. Nearly all the "impact craters" were created five thousand years ago by the "thunderbolts of the Gods" and by plasma discharges in arc mode.

... Mercury

In later Egyptian mythology the planetary interactions after 3147 BC are understood as the battle between Jupiter as Osiris and Saturn as Seth, or the

reverse of this. The assigned names vary with the temples of different nomes (districts). One late Egyptian source off-handedly lists the battle (and periods of "negotiations" among the Gods) as lasting for 80 years. By one account the "pupil of the eye" was lost; by another Osiris lost his genitals at the end in the turmoil, reminiscent of a passage in Hesiod's *Theogony*. The "negotiations" are the sight from Earth of the known planets bunching together in the same location of the ecliptic, which would happen periodically and more frequently than today. [\[note 12\]](#)

Mercury (Thoth of the Egyptians) also was a survivor of the encounter between Saturn and Jupiter, and was (apparently) first noticed at this time. Mercury is somewhat larger than our Moon, represented in later Greek iconography as Hermes with winged sandals and a winged hat, carrying the Caduceus -- two snakes entwined on a staff below a winged disk. Mercury, because of its smaller size and weak magnetic field, would have had only a limited plasma tail -- certainly not the 30 million mile plasma tail identified as the hair of Isis (Venus). Mercury certainly was part of the stack of Saturnian planets, at least since late in the European Magdalenian (17,000 to 14,000 years ago), and occupied a position between Saturn and Mars. [\[note 13\]](#)

Mercury obviously also was on a very elliptical orbit, as it still is today -- a much different orbit than today, one which overrode the orbit of Earth. Mercury in remote antiquity was very busy.

... Jupiter

The coma outlining the equatorial plasma belt of Jupiter, seen at a distance, would have looked like an owl, with its immobile staring eyes and a plasma tail body extending below the planet. This is a motif which becomes the owl totem of Athena and shows up as petroglyphs throughout the world, as talismans in the design of horse bridles and pectorals, and even on coins (at a later date).



[Image: Left, carved ivory Amulet, Anatolia, circa 3100 BC. Center, carved petroglyph, China, circa 3000 BC. Right, silver coin of the city of Athens, inscribed A-Th-E, Athena.]

The ivory "Eye mask" or "Eye Icon" amulets show up stored by the thousands in Northern Mesopotamian caches shortly after 3100 or 3000 BC, and appear also as engravings on the walls of barrows and as thousands of petroglyphs worldwide. Of the ivory amulet, three hundred complete and thousands of broken pieces were found. The eyes likely represent the view of a toroidal plasma surrounding Jupiter. The body is the giant plasma tail extending from the south pole. The inscribed ibex and plow are symbols from the previous era.

"[Talbot] drew attention to what he called the 'eye mask.' ... He had collected a series of 'eye mask' images, ranging from Easter Island in the southern hemisphere to North America, Europe, ancient Mesopotamia, and elsewhere. From the global distribution he had deduced that the formation was seen from both hemispheres. [Anthony] Peratt immediately identified the eye mask as a 'low opacity torus' or thick ring, seen from a vantage point substantially off-axis, not too far from the plane of the torus. The most intense currents in a plasma torus are concentrated at the center and surrounded by a number of concentric 'shells.' Because the outer shells have a low opacity, an observer can see deeply inside the torus. The center of the toroid cross section becomes more visible at optical wavelengths as the outer plasma shells become less opaque. In addition, the toroid tends to flatten with increasing current, a characteristic revealed by innumerable

instances of the eye mask globally and as seen in the ancient Sumerian symbols of the goddess Inanna."

-- David Talbott and Wallace Thornhill, *Thunderbolts of the Gods* (2004)

That "the formation was seen from both hemispheres" speaks to the fact that we are not seeing something in the north skies above the pole. Jupiter with his owl-eyes was seen anywhere the ecliptic could be seen -- at least during those months when Earth on its own orbit passed Jupiter in its slower travel on its orbit.

The eye masks might be "the ancient Sumerian symbol of the Goddess Inanna" but it dates to after 3147 BC, and should be association with Jupiter -- at least, so I will claim. Of note is the permanence of symbols: 3000 years later the owl eyes show up on silver coins minted by Athens, as the symbol for Athena (as shown above). It is not Venus, however, unless it be suggested that Venus had a magnetic field. Only if Venus had a magnetic field, could it have developed a toroidal form at its equator, and flower forms at both poles.

The eye mask is Jupiter, in limited plasma discharge because it was still close to the Sun. As Jupiter moved into asteroid belt, its coma became much smaler, and the view of the equatorial toroid vanished from view.

There is a Maya glyph, meaning "Venus rising," which looks identical to the face of the eye-icon in having two eyes under a single wavy shaped eyebrow. It is often used as a frieze in buildings. In some of the codexes it is used as a label to designate a celestial form -- a planet.

To most of the world Saturn is the loser and Jupiter is clearly the victor. He is a younger God, never seriously noticed before 3147 BC, but since that time held by many peoples to be a resurrection of the older God Kronos. Widely named "the younger," he replaces the older God of Time and Beginnings, Kronos or Saturn. He is Zeus, "youth" of the Greeks, or Jupiter, "father youth" (Jove Pater) of the Romans.

The Absu and Duat

This was the first time humans had seen anything of interest in the south sky in a thousand years (the original Peratt column had vanished in 8347 BC). The battle had started in the northern skies, but as the Earth spun away from Saturn

and Jupiter, the battle scene would have shifted to the ecliptic in the southern skies.

At first it might have been the sight of two globes of equal size and a separation of a few diameters, surrounded with sheets of plasma and the massive outpouring of plasma below Jupiter. Egyptian "myths" suggest that the two planets at some point drifted away from each other. In effect the coffin of Osiris floated down the "river" of the ecliptic -- north toward Biblos (which is the correct direction).

From representations in Mesopotamia it appears as if the plasma in glow mode at the bottom of Jupiter was absolutely huge, and deserves to be called a "mountain." The *Popol Vuh* simply calls Jupiter "mountain." The coma of Jupiter may thus have completely obscured whatever changes Saturn was undergoing, and in fact we hear nothing of Saturn.

The rotation of the night sky would move the battle from east to west, the change of seasons would move it further up and down in the sky, and the rotation of the year would bring it closer in and move it further away. Most likely the spectacle could also be seen when it occurred on the other side of the Sun and may have been seen in the day sky. But as the receding planets diminished in size, the battle had moved into the night sky to the region of the Absu or the Duat -- the ocean in the southern sky. Sumerian Absu translates as "abyss" or "the deep." In Egypt this region is known as the Duat. [\[note 14\]](#)

The destruction wrought by Jupiter with plasma bolts in the asteroid belt (Hesiod's second battle) would have left dust and debris strewn along the ecliptic, causing the "path of the Gods" to be marked like a highway, defining the road of the Sun and the planets -- the zodiac. The lighted zodiac (the ecliptic) was last seen from Earth in AD 1840. [\[note 15\]](#)

Because of the disappearance of the planets into the far reaches of the Zodiac, the southern sky became known as "Lower Earth" (as opposed to "Middle Earth," where we live) and is eventually designated as the "Underworld" -- the graveyard for dead Gods and soon, by extension, as the place to which humans go at their death. By the time of the first editing of the "Iliad," in about 500 BC, the Underworld has moved below ground.

Some of the debris created by Jupiter might have reached the vicinity of Earth, and started to fall toward the planet. This would have been gases, ionized dust particles and particulate matter. There might have been a continuous infall from

dust near Earth or it could have been periodic as the Earth swept through the clouds of this matter which may have orbited the Sun. The falls of material into the upper atmosphere would have caused patterns of concentric circles and spirals to appear during the nighttime, and, in fact, these were recorded in profusion on the boulders of megalithic barrows after 3100 BC. Similar spirals and concentric circles have been recorded in modern times in the night skies from disturbances of the upper atmosphere by high altitude rockets -- perhaps from the exhaust gases. [\[note 16\]](#)

Some of the debris would remain as part of a series of rings around all the larger planets. Earth also would have ended up with its share of dust and suspended rocks.

In Akkadian times (after 2345 BC), in Mesopotamia, the name for the village of Babylon was misunderstood by the invading Akkadians as "The Gate of the Gods" -- that is, the doorway through the Absu. Subsequently, Babylon became the most important ceremonial center in all of the lands of Akkad and Sumer, a position held for the next 2000 years.

The rings of the Absu disappeared, rained down upon Earth or more likely drifted out to space, after 2349 BC, in what will later be known as the "flood of Noah," with the last and most distant ring remaining, I suspect, to perhaps AD 600 as the Ouroboros. More on this in the following chapters.

I should note again that once the reader knows of the Absu, many statements and descriptions from remote antiquity, which have reference to an ocean, a sea, a number of rivers, or a seven-headed snake, all of a sudden take on meaning and start to make sense. The concept of an ocean in the south skies remained even long after the Absu disappeared.

I should add one note on the destruction of the northern polar configuration, and its effects on Earth. Humans certainly were aware of the cataclysm. On the Palette of Narmer, Jupiter is shown as the bull who destroys the walls of the city of the Gods. The flooding from the south, would have devastated many coastal regions, and in many locations completely wiped out all of the human population. But many other regions were unaffected. Egypt was certainly one of them.

And overall there would have been no geological effects -- no earthquakes or shifting mountains, no forces applied from the exterior, impacting bolides, or explosive detonations of planetary thunderbolts. Any change in the orbit of the

Earth would have been in translation -- that is, a left-right and up-down movement -- which would not have been felt, just as today we do not notice that the Earth is circling the Sun. The only catastrophe was the flood.

Endnotes

Note 1 --

The fact that the high tide stood at the South Pole, rather than the North Pole, is correct. The exterior planet pulls up the crust of the Earth, and has little effect on the ocean water. What happens, in fact, is that the ocean water runs off of the raised crust. Almost all textbook which attempt to explain tidal action are in error to suggest that the Moon pulls up ocean water.

Details of information on a worldwide flood is taken partially from an article by Charles Ginenthal, "The Flood" in *The Velikovskian* (1994), and partially from other sources. The action of the oceans and translational waves rushing onto continents has been adjusted for the simple mechanism of the sudden release of an extremely high standing tide at the South Pole, the South Atlantic, the South Pacific, and the Indian Ocean. There is no need, as others, including Ginenthal, have suggested, of a polar relocation of the Earth and the translation of continents to different latitudes.

Saturn, with a mass 3000 times that of the Moon, would, even at a distance twice that of the Moon, exert a tidal pull (on the Earth's crust) 350 times stronger than the Moon does today. However, it would still be insignificant compared to Earth's gravity and the pull of Saturn would not suck water away from Earth, as was thought at one time. The calculations below compare the tidal pull (gravitational attraction) of the Moon, Saturn, and Earth. The formula below is Newton's $F=(K m' m'')/(r^2)$ using as the mass of Saturn 100 times the mass of Earth, and for the Moon 1/10th the mass of Earth.

$$\text{Moon: } 0.1/(243000^2) == 0.0169$$

$$\text{Saturn: } 100/(409000^2) == 5.9$$

$$\text{Earth: } 1/(4000^2) == 625$$

The units have no sensible measure (and $10 \exp -10$ is not shown), and are only shown for comparison. Normalized to the tidal pull of the Moon, the numbers would be:

Moon: 0.0169 == 1
Saturn: 5.9 == 349
Earth: 625 == 36982

The calculation above shows that if the Moon today can raise tides 10 to 20 feet (7 meters) high, then if we multiply by 350 we get a height of 0.5 to 1.5 miles for the Antarctic "tide." In reality the tides attributed to the Moon only represent the movement of ocean water, and thus the "10 to 20 feet" mentioned above cannot validly be used as a comparison.

The amount of an uplift of beaches in South America increases toward the south. It is on the order of 1000 to 1300 feet (430 meters) in Chile. But beaches raised by a thousand feet also occur elsewhere, as along the east coast of New Zealand (where the height also increases toward the south) and along the south shores of California.

Raised beaches throughout the world are impossible to use as an index of seismic activity. They vary from 30 feet to 1500 feet (500 meters), and might represent the raising of land as easily as the lowering of the sea levels. As an example: When the glacier covering Norway melted, the land under the glacier rose (rebounded) with the result that the region of the Baltic and North Sea, which had ballooned upward due to the pressure of the northern glaciers, and were for a long time free of sea water, lowered to be covered by water.

A high tide stood at the south polar regions for thousands of years. This would leave behind beaches at a higher elevation. Ocean water in the south would have stood higher from circa 10,500 BC until 3147 BC.

The lost beaches we are looking for would all be under water instead. Archaeologically these can be found off the coasts of India and Japan (both with submerged man-made structures), but also very interesting are the dolmens and henges at the Atlantic coast near Carnac, which are now under water. These last were certainly not built before the end of the last ice age, which is often suggested for sunken Neolithic ceremonial structures.

One of the related questions is how tidal organisms -- clams, sea anemones, oysters, crabs, and others -- could have adapted to tides in only 5000 years (that is, since 3147 BC). Rachel Carson, in *The Edge of the Sea* (1955), convincingly demonstrates the dependence of most of the seashore creatures on the high, low, and seasonal tides for reproduction and relocation.

There were no lunar tides before the Moon showed up after 2349 BC (as will be related later in this text), although there were solar tides, and daily tides due to the off-center presence of Saturn. In 7000 years below Saturn, as I have suggested, the rotational axes of Earth and Saturn never aligned, so that the Earth would have been subjected to daily tidal forces. Away from Saturn after 3147 BC, the Earth would still have been subjected to tidal forces due to the Sun (which is a major element today), and more so if it is considered that the Earth was on a smaller orbit.

The concept of the "tidal forces of the Moon" is frequently brought forward as an argument against the late appearance of the Moon. So are data which show that coral growth has always and forever been at a rate of 365.24 rings per year, although I have also seen much discrepant data.

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Note 2 --

There is no evidence of a hunter/gatherer population in most of India. These people may have been swept off the face of the Earth. The Siwalik hills include surface deposits of Acheulean hand axes and bi-faced cleavers, in addition to choppers made from broken pebbles. These are normally attributed to the Upper Paleolithic, and thus represent a pre-neolithic industry, with some archaeologists attributing the tools to Homo Erectus. On this basis the dating of the Siwalik fossil assembly is placed at 125,000 years ago. The fossils of animals do not match these estimates.

"The Siwalik Hills on the southern edge of the Himalayas consist of sedimentary deposits 2,000 to 3,000 feet (1000 meters) high and extending for several hundred miles, abounding with fossil beds of so many and so varied species that the animal world of today looks impoverished by comparison."

-- James Hogan, *Kicking The Sacred Cow* (1999-2007)

A similar condition exists in Northern Burma. In both cases there is low-lying land providing a clear path of tsunami access from Antarctica via the Indian Ocean. The mounds of bones in Burma are interleaved with layers of mud, which would be expected when a wave comes to a standstill and suspended material starts to sink. Probably the mud layers were produced by secondary waves.

Along coastal India there are many architectural archaeological sites deep below oceanic waters. See, for example, Graham Hancock, in *Underworld* (2002), who lists many underwater sites in India and Japan. Hancock places the blame for the submerged sites to glacial melting before circa 10,000 BC. I would suggest the submersion was due to a leveling of the oceans in 3147 BC.

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Note 3 --

Although suspected of being windblown and the result of glaciers grinding rocks to a fine dust, the actual source of loess remains uncertain. Glaciers do not grind rocks to silt, as the pebbles of terminal moraines testify. Similarly, windblown dust does not remain unoxidized. Loess contains no organic material. The following is the "accepted understanding," which is mostly descriptive:

"Loess is mixture of silica and clay, with particle size ranging from 0.1 mm down to 0.005mm [small!]. Where loess is unoxidized, it has a greyish color, but may also be yellow, orange, or brown because of presence of ferric oxides. Deposits of loess occur in North America, Europe, Russia, Siberia, China, and also in Argentina and New Zealand." -- D. A. Cyr, Annular Space Dust (1968), paraphrased by A. de Grazia.

"Loess is an aeolian sediment which forms by the accumulation of wind-blown silt and lesser and variable amounts of either sand or clay. Glacial loess is derived from either glacial or glacial outwash deposits, where glacial activity has ground rocks very fine. After drying, these deposits are highly susceptible to wind erosion, winnowing of their silts and clays, transportation of these sediments, and deposition some distance downwind from glacial deposits. The loess deposits found along both sides of the Mississippi river Alluvial Valley are a classic example of glacial loess."

"The thick Chinese loess deposits are classic nonglacial (desert) loess with their sediments having been blown in from deserts in Northern China. The loess covering the Great Plains of Nebraska, Kansas, and Colorado is nonglacial desert loess. Nonglacial desert loess is also found in Australia and Africa." -- Wikipedia

The reader may recall the wide spray of sand resulting from the lightning bolts which pulverized the depths of the great Lakes in 10,900 BC. Electrified arcing looks to be a more likely source for the loess, including China.

[\[return to text\]](#)

Note 4 --

This text was written before the Indonesian tsunami event of 2004.

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Note 5 --

I suspect that the Moon was seen in an orbit about 4 million miles farther from the Sun than Earth. At that distance, however, it would have looked more like a large bright star. Hesiod writes that the Moon showed up after the defeat of Uranus ("Father Sky"), but only after a very long time. It would also be easy to mistake the globe of Jupiter (when it was still orbiting the Sun at 0.7 AU) for the later image of the Moon. Mesoamerica seems to have done this as shown by the history engraved in monuments at Palenque. At Palenque, the Moon is the mother of all the planet gods.

I suspect that after the fall of the Absu in 2349 BC (covered in the following chapter), an amount of dust remained in orbit at a considerable distance from the Earth, located exactly above the equator of Earth. This might represent the necklace set as a sign in the skies by the Sumerian Goddess Inanna. This remnant of the Absu was red, however, and Inanna's necklace was the cyan of lapis lazuli.

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Note 6 --

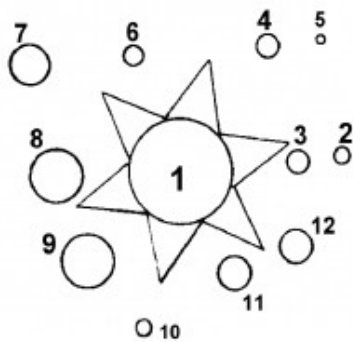
As related by Robert W. Bass, in "The Titus-Bode Law from 1766 to 1996" *Pensee* (1996), "Zecharia Sitchin, in *Divine Encounters* (1996), ... displays the drawings on an Assyrian cylinder seal which shows an asteroid belt between Mars and Jupiter, and shows Saturn with rings!"



[Image: Cylinder seal: Jupiter on a throne with a planet and 11 satellites. After

Sitchin.]

I wonder from what vantage point this could have been drawn. It is probably the seal image above which shows Jupiter enthroned, with an adjacent pointed star form, which likely is Jupiter, ringed by 11 smaller round balls of different sizes. (On the web there is a portrait of Sitchin holding a greatly enlarged version of this seal.) The small balls are most likely meant to be the satellites of Jupiter, although there are two additional satellites in addition to the the ones which are normally easily seen. Graphic traditions for two-dimensional surfaces in antiquity revolved on the depictions of recognizable detail without concern for actual dimensional relationships.



[Image: Jupiter with 11 satellites. Diagram after Sitchin]

The adjacent graphic is a reproduction of the star and its 11 satellites (by others). The table below relates all the satellites of Jupiter to the depicted diameters of the spheres, except the dozens of tiny satellites discovered by spacecraft in recent years. Additional established larger satellites are shown separately below.

Satellite	Distance (km)	Radius (km)	Mass (kg)	Discoverer	Date	diagram
Ganymede	1,070,000	2631	1.48e23	Galileo	1610	9
Callisto	1,883,000	2400	1.08e23	Galileo	1610	8
Io	422,000	1815	8.94e22	Galileo	1610	7
Europa	671,000	1569	4.80e22	Galileo	1610	12
Amalthea	181,000	98	7.17e18	Barnard	1892	11
Himalia	11,480,000	93	9.56e18	Perrine	1904	4
Thebe	222,000	50	7.77e17	Synnott	1979	3 *
Elara	11,737,000	38	7.77e17	Perrine	1905	6
Metis	128,000	20	9.56e16	Synnott	1979	2 *
Lysithea	11,720,000	18	7.77e16	Nicholson	1938	10

Adrastea	129,000	10	1.91e16	Jewitt	1979	5 *
* -- not likely part of the nine from antiquity						
Remaining satellites (mostly very large orbits)						
Leda	11,094,000	8	5.68e15	Kowal	1974	smallest
Pasiphae	23,500,000	25	1.91e17	Melotte	1908	too far
Sinope	23,700,000	18	7.77e16	Nicholson	1914	too far
Carme	22,600,000	20	9.56e16	Nicholson	1938	too far
Ananke	21,200,000	15	3.82e16	Nicholson	1951	too far

The last column lists the numerical representation in the diagram above. There are some discrepancies, such as, for example, the fact that Io (number 7) should be much closer to Jupiter than Ganymede and Callisto. On the other hand, Amalthea (number 11) and Thebe (number 3) are appropriately shown as much closer to Jupiter. But, again, Metis (number 2) and Adrastea (number 5) are sized right, but located too far from the planet. But the graphical presentation is reproduced in about 2850 BC from records dating from shortly after 3147 BC, when these satellites would have been seen close up.

In circa 2860 BC Jupiter would have entered the asteroid belt at about 2 AU, obscuring the satellites for the next few hundred years. The satellites certainly could be seen up to about 2 AU. This distance is about one third of the distance to which Jupiter would eventually travel and so is equivalent to being seen at three power magnification with a telescope, as Galileo used in his discovery of the four larger satellites.

Amazingly, three of the listed satellites are at 11,000,000 kilometers. One of the surplus satellites is also at this distance, but it is very small. All the other additional satellites are at circa 22,000,000 kilometers and likely would never have been noticed.

As the Sumerian flood story has it (as retold in the *Epic of Gilgamesh*), "the gods gathered like flies over the sacrificer." These are the flies.

There are very obvious similar depictions of the atmospheric bands of Jupiter, shown as a turban headdress (not shown in this seal). The banded headdress of Marduk (who is Jupiter) shows up on later Babylonian era cylinder seals.

The depiction of an anthropomorphized Saturn (or Kronos) encircled by rings extends to Roman times. No other God is ever depicted as bound by rings.

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Note 7 --

Plato's Atlantis is the only instance of the "Atlantis legend" in antiquity. If the Atlantis legend was current in Greece or Egypt, we would have heard about it from many other sources, although *Hamlet's Mill* (1969) by Giorgio de Santillana and H. von Dechend recounts hundreds of versions of this legend worldwide -- of a land held up by a giant, a tree, or a river rising in the sky. The tree, river, snake, bridge, or giant at some time in the past was cut down, and the land sank into the sea. That can be placed at 3147 BC. The "sea," of course, is the Absu of the south into which all the planets, but especially Saturn ("the land"), disappeared.

Plato's date of 9600 BC is the weakest link in his story. An old man (Critias) has to go home to think over what it was that he might have heard his grandfather tell of what *his* father had heard tell by Solon when he was a little boy. Plato actually places Atlantis in the Gulf of Guinea, west of equatorial Africa. As seen from Greece, this is a sightline for the southern plasmoids, which rotated into view to stand over South America. Thus it could very well be suggested that Atlantis represents the ball plasmoids of the south. Atlantis was, after all, ruled by the water god Poseidon and his two queens.

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Note 8 --

Hesiod, in the *Theogony* (circa 650 BC). See the translation by Norman O. Brown, and especially the introduction by the translator, as published by The Library of Liberal Arts, Bobbs-Merill Co (1953). The *Theogony* recapitulates the period with which these pages deal, from the creation through the end of the "Era of the Gods."

The planet Uranus ("Father Sky") is misnamed by Hesiod, for he is the cloud-shrouded sky or, more likely, the duck seen therein with the egg next to the duck. He is thus the father of Kronos.

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Note 9 --

During the early years after 3147 BC, the Egyptians are uncertain to whom among the celestial apparitions they owe allegiance. The names of a number of "kings" come forward, of which King Narmer seems to have had some extended claims. His name-serekh is found throughout Egypt and the Levant as labels on

wine jars and other products, destined for delivery to the temple at Nekhen. The name-serekh, Nar-mer, consists of the glyphs for "catfish" and "drill" (or "chisel").

The glyph for "catfish" has the shape of a toroidal thunderbolt (a plasmoid), in all the instances I have seen. See for example the illustrations of serekhs, accompanying the text "Dynasty 0" by Francesco Raffaele (2002) at <http://xoomer.virgilio.it/francescoraf/hesyra/dynasty0.htm>. In one instance this is depicted with a rope-like twisted body. The Nile catfish has only a two-pronged tail, but has the typical large feelers protruding from its head, making it look like a trident.

The "catfish" is the plasmoid thunderbolt which Jupiter explosively launches at the Titans and various objects in the asteroid belt. The "chisel" describes what the catfish shaped bolt does: it produces a spray of material like a chisel striking stone, something with which the Egyptians were familiar from their industry of stone jars and platters.

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Note 10 --

The main asteroid belt is located beyond the orbit of Mars and halfway to the orbit of Jupiter -- from about 2 AU to about 3.5 AU. Jupiter is at 5.2 AU. There are additional asteroids traveling within the space of the inner planets, as well as beyond Jupiter.

The orbits of the asteroids today are still very chaotic and many asteroids are on elliptical orbits. Frequently some of them will develop a cometary coma in moving from aphelion to perihelion. These objects are subsequently classified both as a comet and as an asteroid.

The belt is generally thought to be the remnants of a planet, sometimes called Krypton. A planet can blow up during a time of severe electric stress when electrons rushing outward from the interior disrupt the lattice of the structure. Similarly, bolides nearing Earth often explode and fragment on reaching the Earth's ionosphere -- not the atmosphere. They are seen to fracture but are not heard.

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Note 11 --

The largest piece of missing evidence in the "impact theory" presented to account for all the various craters on asteroids, satellites, and planets is the lack of the impactors. Not a single asteroid is moving at anything except a crawl with respect to any of the other asteroids. There is very little difference in the speed of travel of objects traveling at the same distance from the Sun.

Gravitational forces between the Earth and an approaching asteroid will increase the speed to a value on the order of 25,000 miles per hour. The Moon will accelerate an asteroid to about 5000 miles per hour. Two asteroids meeting under conditions of gravitational attraction, however, would just ding each other.

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Note 12 --

Osiris is probably Jupiter, looking like a draped figure, but Osiris may also be understood as Saturn. The "eye," which is lost, might be the whole Saturnian polar structure with the rings outlining the eye, in effect the "Eye of Ra." The eye might also be the pupil of the eye -- that is, Mars.

The lost genitals of Osiris are the only body parts not retrieved by Isis for burial. The image of the severed genitals might be Mercury with its erect plasma tail. But more likely it is the first appearance of Saturn in arc mode in 4077 BC, holding Venus as the adamantyne sickle in his right hand, with Mars below as a red stub against the body of Saturn.

The removed genitals are attributed by Hesiod to the castration of Uranus (the primordial "Father Sky") by Kronos (Saturn). They "floated for a long time," says Hesiod, spilling blood on the sea, from which eventually arose the Moon. The "sea" is the "waters above" -- the Absu, not the Earth's ocean. The Moon only arose (out of these waters) after all of the Absu had turned to blood in 2349 BC. See a later chapter for these details.

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Note 13 --

The Turin Papyrus of circa 1200 BC gives Mercury (Thoth) a "lifetime" of 3126 years. The extremely long life assigned to Mercury may be due to his changing responsibilities over time and certainly due to his constant visibility. The statement also needs to be understood as the lifetime up to that time, that is, up to circa 1200 BC.

In the second millennium BC, when in effect Mercury was the only remaining active planet, his duties (as Thoth) were extended to include creation, and thus his lifetime needed to be counted from the very beginnings. If the Turin Papyrus indeed dates from circa 1279 BC to 1213 BC (the reign of Rameses II), then, subtracting 3126 from 1279 BC places the birth of Mercury in circa 4400 to 4300 BC. This is roughly equal to my estimate (4077 BC) of when Saturn went nova and the coma dropped to reveal its satellites and companion planets.

In Appendix A, "Notes on Chronology," I suggest a more accurate date of 4077 BC for the nova event of Saturn. That would date the Turin Papyrus in 951 BC ($4077 - 3126 = 951$).

The two small circles of stone within the large Avebury henge and a number of other henges (including Stonehenge), might suggest two planets below the south pole of Saturn. We have no idea of why these would have been offset from each other to give this particular depiction, or even if the depiction of two objects seen below was intended in the construction of Avebury, especially because the whole of the circular sets of standing stones apparently date to after 3100 or 3000 BC.

As a sub-polar Saturnian planet, Mercury would have remained with Saturn (like Mars), not to be released until Saturn reached the asteroid belt, and Saturn's gravitational sphere of influence shrank in the presence of the asteroids. Both of these planets would have immediately started to "fall" toward the Sun, and thus establish orbits with the Sun as one center, and the edge of the asteroid belt as the aphelion of the orbit.

The word "released," as used above, is probably incorrect, but sort of sums up what might have happened. A change in the shape of the plasmasphere of Saturn (as it entered the asteroid belt) is certain -- the change in form will be seen and recorded for the planet Jupiter.

Ev Cochrane, in "Martian Metamorphoses: The Planet Mars in Ancient Myth and Religion" (1997), identifies Apollo (which I claim to be the planet Mercury in antiquity) with the planet Mars (under various names like Aries or Nergal) in that they both are seen as the cause of plagues and have reputations for destructiveness. The cross-identification of attributes in antiquity is correct, although it has been difficult to establish the destructive nature of Mercury. Both Mars and Mercury apparently moved together from deep space into the region closer to the Sun, coming close to Earth in the process (as I will establish

in later chapters). Homer still deals with Apollo as Mercury in the 7th century BC.

Velikovsky, in an unpublished document, "Mercury" (at varchive.org), notes in a footnote that Mercury was active in the second millennium BC, and quotes from the Bhagavatamrita that "Budha [Mercury] became visible the 1002nd year of the Cali yug." The Kali era (Cali yug) started in 3102 BC. The 1002nd year is 2100 BC, and thus likely represents the return of Mars and Mercury starting in 1936 BC (resulting in the destruction of Sodom and Gomorrah).

Mercury is made responsible for the Tower of Babel incident by Velikovsky. He quotes the writings of Abraham Rockenbach, who in "De Cometis Tractatus Novus Methodicus" (1602), places the Tower of Babel incident in 2060 BC. I have a somewhat earlier date of 2150 BC, which I will detail in a later chapter (and make Jupiter responsible for the incident).

In addition to a number of distinctive physical (or symbolic) differences between Mars and Mercury, Cochrane also identifies Mercury with the mythical Hyperborean people who lived in the far north. This is believable, since Mercury apparently wound a much tighter path around the Sun, such that on summer nights, on approach of morning, it could be seen to disappear at a low angle in the northeast (over a period of days), the same location from where the Sun would then rise.

Even if we currently have forgotten, the ancients knew that Mercury was the planet placed between Saturn and Mars, and as a result Mercury was depicted frequently as crowned with a star-shape of plasma before 3147 BC, in effect a crown. Almost all later depictions of Mercury (or Apollo) show him with this star-shaped halo. After 686 BC, when its atmosphere burned up, the title of Apollo was transferred to the Sun. The participation in 685 BC in a spectacular display of arc mode plasma (the Phaethon event), was the convincing final twist to the transformation.

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Note 14 --

About the Duat, E. A. Budge wrote:

"In the XIXth Dynasty we know that the Tuat [Duat, the Underworld] was believed to be situated not below our earth, but away beyond the earth, probably in the sky."

-- E. A. Budge, quoted by Cardona, 1994.

In fact we can be certain that in antiquity the Underworld was held to be located in the south night sky below the equatorial, consisting initially of the circles of the equatorial rings around the Earth. The bright path of the ecliptic was considered a celestial river, congruent with the "waters above" of the earlier polar apparition. The ecliptic was located both above and below the equatorial, as a tilted hoop in the sky, so that part of the ecliptic dipped into the Absu or Duat (which stood to an altitude of less than 50 degrees in Mesopotamia or Egypt). The ecliptic is the later river Styx of the Greeks, "encircling the lower world." That the lower (southern) heavens would continue under the Earth probably must have seemed obvious.

At the latitude of Mexico City and the Yucatan (about 20 degrees north), the planets on the ecliptic rise out of and plunge into the ocean at a steep angle. Mesoamerica, as a result, always places the "Underworld" below ground.

In the tropics, closer to the Earth's equator, the Duat would have stood almost straight up in the sky. With the rings and spokes it would have looked like a spiderweb suspended above and stretching from horizon to horizon. It is little wonder, then, to hear that the creation God of Central African tribes is a spider.

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Note 15 --

The concept of a glowing zodiac occurs in Chinese and Mesoamerican sources. It is also identified as the river Styx of Greek mythology, which has to be navigated or crossed before entering the Underworld, and, in Egypt, as a similar river to be crossed by the dead Pharaoh.

In encyclopedias dating from the 19th century AD, the glowing ecliptic is still identified as a ribbon in the sky and called the "zodiacal light," and note was made that this was last seen extending across the sky in about AD 1840. Entries in encyclopedias with later publication dates identify the "zodiacal light" as the Sun's "afterglow" ("gegenschein"), a glow due to sunlight on dust particles in outer space, but seen only shortly before sunrise or after sunset.

In the *Encyclopaedia Britannica*, 11th edition (circa AD 1911), it is noted of the "Zodiacal Light ... until recent time was never observed except in or near the zodiac; hence its designation." The article notes that the zodiacal light was 2 to 3 degrees wide, and was not the "gegenschein" of the Sun at dawn or sunset. It

further notes the investigation of "... George Jones, who spent eight months at Quito, Peru, at an elevation of 9000 feet (3000 meters) ... [and who] saw the zodiacal band at midnight as a complete arch spanning the sky ... sometimes so bright as to resemble the Milky Way." (Since I first wrote this, the content of the 11th *Encyclopaedia Britannica* became public domain. I initially copied this from a volume at a Newberry Library book sale. By the time of the 15th edition, in 1984, the Zodiacal light was equated with the "gegenschein.")

It would make sense to have the zodiac glowing, even if just from reflected sunlight, if millions of asteroids had been ground to dust -- as had happened when plasma arcs struck these rocks floating in space. The silicates split asunder as the electrons broke their bonds to rush through the material to the location of a plasma contact point. Neptune and Uranus had passed through the asteroid belt to start the process of electric arcing to these objects. Saturn would have followed to do the same. And last the gigantic planet Jupiter passed through. This last was especially noted by Hesiod.

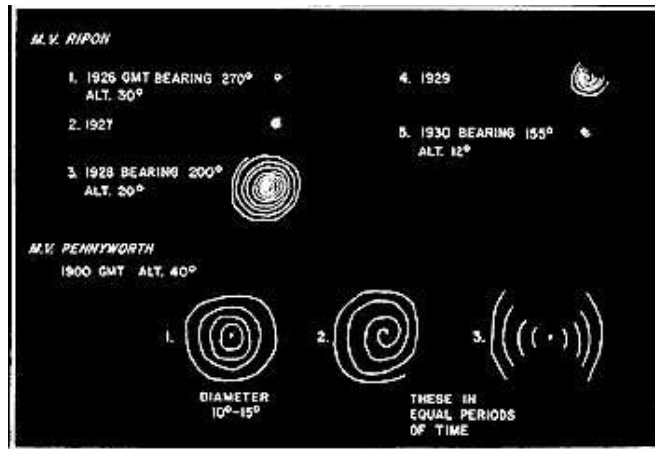
The dust was ionized and repelled into space electrostatically. We saw this also when the space probe "Deep Impact" fired a projectile at Comet Tempel-1 in 2005.

Thornhill has identified this process as identical to electric arc machining. In vacuum tubes this process (minute particles breaking away from the cathode) is known as sputtering. Under plasma conditions these minute particles, when they find themselves in a plasma environment, will become encased in electrons at glow mode. This has been observed in plasma tubes and described since early in the 20th century. Basically, this is what made the ecliptic glow.

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Note 16 --

"Curious Manifestations of Ascending Rockets" from William R. Corliss's *Handbook of Unusual Natural Phenomena* (1977), quoted from *Marine Observer* (1964), AC Browne, et alii. All three ships were located off the coast of Africa, north of the equator, after sunset. The rocket mentioned below was fired during the daylight hours, 1400 hours EST, from Cape Kennedy, Florida. Rockets bound for outer space move in an easterly direction.



[Image: Rocket exhaust seen at night. After Corliss.]

First report from "British Oak," Tenerife to Monrovia. Captain A. C. Browne. Observers, the Master and Mr. P. M. Edge, Chief Officer.

"27th November 1963. A point of light of about 2nd magnitude with an elliptical glow of approx. 3 degrees diameter and concentric circles of light was observed through binoculars at 1925 GMT. It was first seen bearing 230 degrees at 18 degrees altitude and disappeared 4 min. later bearing 190 degrees, altitude 8 degrees. The sky was cloudless and the atmosphere clear."

"Position of ship: 24 degrees 27' N, 17 degrees 14' W."

A second report from "Ripon." Captain Smith. On passage to Freetown. Observers, the Master and Mr. G. W. Brown, Chief Officer.

"27th November 1963. At 1926 GMT an illuminated body was observed bearing 270 degrees, altitude 30 degrees. It appeared at first to have a suffused glow around it, but as the object moved parallel with the ship's course, the glow assumed the definite form of a tight spiral of blue-white light. The spiral expanded to a maximum radius of about 5 degrees with about 12 turns visible at one time when bearing 200 degrees, altitude 20 degrees. The size afterwards diminished until the body faded from sight bearing 155 degrees, altitude 12 degrees, at 1931. As the object moved in azimuth, it also appeared to be gyrating about a centre in an anticlockwise direction and to vary in brilliance. At its brightest the object had a brilliance less than Venus and greater than Altair; its track passed between these two bodies."

"The whole phenomenon gave the impression of looking into a conically formed spring and was indeed a most sensational sight. We can only conjecture that it was an artificial satellite 'gone wrong' or passing through a cloud of meteoric dust."

"The accompanying sketches show how the phenomenon appeared to the observers. There was a cloudless sky and bright moonlight at the time."

"Position of vessel: 10 degrees 5' N, 15 degrees 59' W."

A third report from "Pennyworth." Captain I. Gault. Middlesbrough to Monrovia. Observers, Mr. J. H. Edwards, 2nd Radio Officer, the Master, Mr. J. Nielsen, Chief Officer, Mr. J. MacKenzie, 3rd Officer, Mr. T. Walker, 1st Radio Officer, and the Chief Engineer.

"27th November 1963. At 1900 GMT for approx. 5 min. a bright object having a magnitude greater than any other star or planet was seen in the sky. It appeared to be stationary in the west at an elevation of 40 degrees, for about 2 min. It then moved off rapidly in a SE'ly direction, disappearing about 2 min. later. The bright light from the object radiated outwards, like the ripples from a pebble thrown into a pond; at first in concentric circles, then in a spiral and finally in concentric half-circles. The general impressions of the phenomena seen are shown in the accompanying sketches. The object was definitely not a meteorite, and the course was too erratic for an earth satellite."

"Position of ship: 7 degrees 39' N, 14 degrees 13' W."

The Marine Observer comments on these reports as follows:

"What was seen by the ships was undoubtedly an American rocket, 'Centaur 2,' launched from Cape Kennedy at 1900 GMT on 27th November 1963. The times and positions indicated by the three ships agree very closely with calculated values. The odd appearance cannot be explained precisely but it is no doubt associated with the fact that the rocket when seen was still under power or had very recently been so."

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Chapter 17: The Gods Leave.

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[\[A New Era\]](#) [\[Endnotes\]](#)

The Gods Leave

The battling Gods in the sky started an immediate retreat after 3147 BC, and Saturn and Jupiter eventually moved to their current orbits, although it would take 860 years for Jupiter and may have taken over a thousand years for Saturn and the Titans. As the Gods retreated into the far sky, Jupiter at first continued to bolt objects in the asteroid belt, through which it was moving, as it was receding from the Sun. The displays enter the mythology of the Gods as the magical weapons of the chief God -- the bolt of Zeus that never misses, the hammer of Thor.

On reaching the asteroid belt Jupiter (in circa 2860 BC) would not likely have retained its extensive lower tail and would have reduced even its coma. Entry into the asteroid belt caused a religious crisis in Egypt. The first dynasty was replaced by the second. A large coma would only develop again as Jupiter exited the asteroid belt and was no longer in proximity to the conductive material of asteroids and dust. After about 300 years, Jupiter exited the asteroid belt in about 2550 BC at a distance from the Sun of 3.1 AU.

While Jupiter was in the asteroid belt, its massive mountain-shaped coma was replaced by horizontal streams of plasma from its south pole (as visually seen from Earth), directed left and right into the dust and objects of the asteroid belt. In Egypt Jupiter assumes the image of a God with ram's horns. After clearing the asteroid belt, Jupiter would again develop a mountainous lower plasma outpouring in an attempt to reach equilibrium with the electric field of the Sun in far outer space (between 3.5 and 5.2 AU from the Sun).

I will get back to this later period in a following chapter, but it might be of interest to quote Plutarch's brief description, from Zoroastrian sources, of the

God Ahura-mazda (who is Jupiter). In *Isis and Osiris*, (AD 200) he writes:

"Then Oromazes [Ahura-mazda, Jupiter] enlarged himself to thrice his former size, and removed himself as far distant from the Sun as the Sun is distant from the Earth, and adorned the heavens with stars."

"One star he set there before all others as a guardian and watchman, the Dog-star [Venus]."

The comment about "distance" suggests that eventually Jupiter's coma was the visual size of the Sun or Moon, subtending 1/2 degree in diameter. From this the coma can be estimated at 3.5 million miles (5,600,000 km) in diameter at the distance of 5.2 AU, which is only slightly larger than Jupiter's current dark mode plasmasphere. [\[note 1\]](#)

The "Dog-star" mentioned in the quoted text above is translated from Greek use of the Egyptian word "Sothis," which was used both for the star Sirius (the Dog Star) and the planet Venus, and meant something like "bright" or "shining." In Egyptian it takes the masculine form for Sirius and feminine for Venus, the difference being an ending "d" or "t" sound in our phonetic translation. The Greeks didn't differentiate, or didn't care. There is the additional confusion in the practice in antiquity of appointing stars as the "spirits" of the planets, as every person (in Egypt) would be stellated after death. Sirius was the brightest star and Venus was the brightest planet. Sirius was "the star of Venus."

The word "Dog-star" is used in the English translation of Plutarch, who used "Sothis" as a translation of "Tishtrya" from his source, the Zoroastrian *Zend-Avesta* scriptures. "Tishtrya" could also be translated as "shining." But from other evidence "Tishtrya" clearly is Venus.

As noted above by Plutarch, the planet Venus remained after the battle to course across the sky. In antiquity Venus is variously called Isis, Hathor, Athena, Inanna, and other names, and is often identified as a warrior Goddess. [\[note 2\]](#)

After 3147 BC, Venus circled the Sun as a planet, and for the next 2500 years displayed a gigantic plasma tail, stretching some 30 million miles (48 million km) away from the Sun. Because Venus is an inner planet, the full extent of its plasma tail would be seen from the vantage point of Earth most of the time. Today the tail has dropped to dark mode, but is still 30 million miles long. Today Venus also still shows its youth by its excessive heat radiating away, continuous lightning strikes, and curious sparsity of craters. [\[note 3\]](#)

Mythologically, Venus was presented alternately as a charmer and a terror. That she remained venerated, despite occasional destructive electric contacts with Earth, is probably due to the fact that Venus was the most spectacular object in the sky between 3100 BC and 685 BC, an image intermittently reinforced by being seen at various distances and various parts of the sky and drawing closer every two years or so. She must have been seen as everyone's friend and companion throughout life. Like the Moon today, wherever one walked, Venus would follow. In Babylonian (Chaldean) records Venus is not recognized as a "planet" until after 600 BC, as also in Hindu records. She simply did not behave as a planet.

And a minor planet, Mercury, with wings and a tail (or a beak, in some Egyptian iconography) continues to scurry back and forth as a messenger of the removed Gods. The orbit of Mercury is the most displaced in angle from the ecliptic, and would have been understood as flying off the ecliptic (the path of the Gods) at times, often disappearing in the portion of the sky where the Sun rose. Mercury became the God of the air in Mesopotamia.

Mercury started to appear with Mars close to Earth about 80 years after 3147 BC. Mars will become the most important God, Horus of the Egyptians, over the next 300 years, a position already held since 4077 BC, but under a different form. More on that in the next chapter.

The Titans (the two giant planets Uranus and Neptune) were banished to the Underworld -- the far reaches of the Solar System -- to be rediscovered by telescope nearly 5000 years later, and named in accord with Greek mythology. Saturn takes up his station as Lord of the Underworld. He eventually becomes just a faint speck among the stars of the sky. However, he will be recognized and kept track of worldwide.

If, as a reader, you wonder at the movement of these planets seemingly out of concert with the celestial harmony of today, I should first remind you that after this period any of the suggested orbits are (with some exceptions) only slightly different from today. I can, in fact, trace almost all of the changes. Most of this will become clear in later chapters and in the appendixes.

But on the other hand, the Solar System is hardly as stable as is generally accepted. The orbits of some of the outer planets are today observed to be changing inclination to the ecliptic, although minutely, caused by gravitational interactions with each other, but as likely to be the result of electric interactions with the Sun. All the repeating comets have likewise been observed to change

orbits for reasons which cannot be attributed to gravitational forces alone. [\[note 4\]](#)

The Return of the Axis Mundi

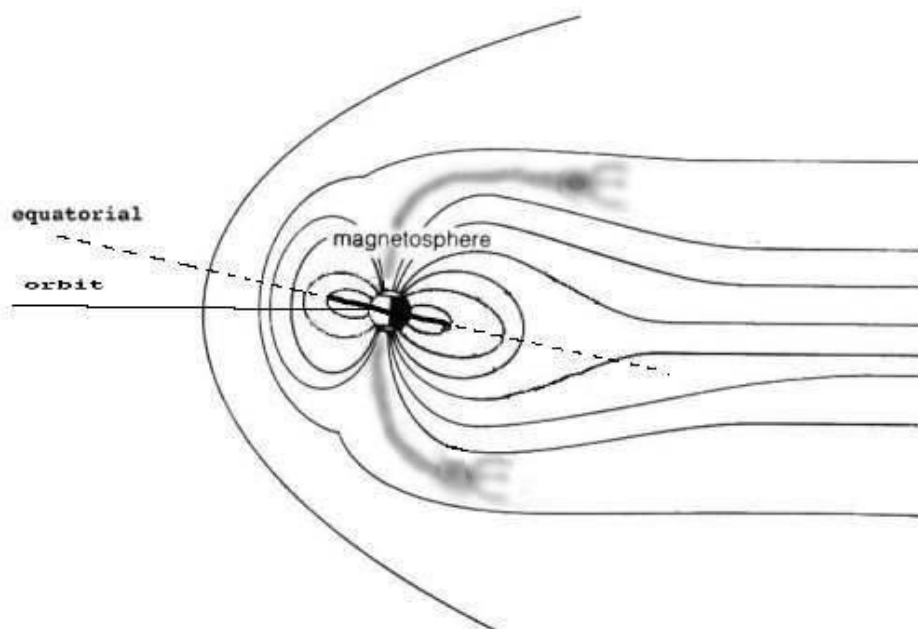
As the Earth assumed a new orbit around the Sun after 3147 BC, it would have had to equalize its charge to match its location within the electric field of the Sun. This was a change from the electric field experienced when Earth was yet within the plasmasphere of Saturn. The equalization of charge was accomplished through an influx of electrons, concentrated at the magnetic poles.

Plumes of plasma in glow mode would have extended soon after 3147 BC from both poles, rising straight up from the north and the south, and then bending toward the tail end of the magnetosphere, away from the Sun, looking like bent twigs at the top. These would be seen at night throughout the world. Most likely the stems of the plumes looked to be the same size or only diminished slightly in diameter with distance from Earth. At the upper end the plume would be terminated in a single plasmoid sphere (similar to the Peratt Column seen in the south after 10,900 BC), with the typical tentacle-like structure extending away from the plasmoid. We know this from Mesoamerican descriptions (as the birds on top of each "directional tree") and later Akkadian and Egyptian illustrations. It is also likely that the *axis mundi* widened at the base to a bulbous form from the formation of a dome of water vapor where the plasma column contacted the ocean and where the plasma plumes turned to arc mode.

To be seen to a latitude of 20 degrees, as in Mesoamerica, the plumes would have had to extend 4 or 5 Earth diameters up (30,000 to 40,000 miles; 48,000 to 64,000 km) along the magnetic field lines, and another 4 or 5 diameters into the tail of the Earth's plasmasphere where they terminated in a ball-shaped or flower-shaped plasmoid. If understood as trees, the plumes would seem to wave in the wind, although in actuality this is the nightly change in perspective resulting from the rotation of the Earth, for the tops would continue to follow the direction of the magnetic field lines of the plasmasphere extending away from the direction of the Sun. The north and south trees would bend toward the east at the start of the night, and rotate to end up bending toward the west by dawn. [\[note 5\]](#)

It might be suggested that after the passage of time the ball plasmoid at the end of the tree would no longer show. It could also be suggested that the plasma plume showed only periodically, perhaps annually as the Earth, still on an

elliptical orbit, moved alternately into a region of higher or lower value of the Sun's electric field. That would mean, since we are dealing with plasma, that the plume would show suddenly and would disappear again as suddenly at the end of some months as the Earth returned on its orbit to a lower value of the electric field and the plasma might switch to dark mode.



[Image: Plasma plumes at the poles extending into the magnetosphere in the direction away from the Sun. Illustration by J. Cook.]

The repeated appearance of the plasma plume might suggest that it is represented by the repeating "shepherd's crooks" carved on megalithic surfaces by the people at Carnac in France (and other locations). A count of the crooks could furnish some estimates of for how many years the *axis mundi* kept returning, although a baseline measure is missing if we assume that the region was completely depopulated after 3147 BC.

It could also be suggested that the "year glyph" used in the oldest records of Egypt, the Palermo Stone, represents the annual appearance of the plasma plume. The Palermo Stone is a carved basalt block from the Fifth Dynasty (circa 2550 BC) of the Old Kingdom, of which only seven fragments exist. The Palermo Stone records pharaohs of the first five dynasties. For each of the pharaohs there is a catalog of years, with each year named after an important event. Each year is distinguished from the next with a "year glyph," which arches over the space used to record events. The glyph is thought to be based on

a bent leafless palm frond, as if one portion of the leaf was removed every day from the frond. [\[note 6\]](#)

Mesoamerica recognized a total of four trees which held up the sky, perhaps also the daytime sky, but certainly the nighttime sky. Mesoamerica places a bird on top of each of the trees. This is obviously an understanding of the terminating plasmoid of each plume, with the tentacles constituting the tail of a bird. The four trees or pillars also occur in the "mythology" of the Egyptians and the Chinese. From Egypt we have the following:

"This heaven was situated in the sky, which the Egyptians believed to be like an iron ceiling, either flat or vaulted, and to correspond in extent and shape with the earth beneath it. This ceiling was rectangular, and was supported at each corner by a pillar.... At a very early date the four pillars were identified with 'the four ancient khu's who dwell in the hair of Horus,' who are also said to be 'the four gods who stand by the pillar-sceptres of heaven.' These four gods are 'children of Horus,' and their names are Amset, Hapi, Tuamautef, and Qebhsennuf. They were supposed to preside over the four quarters of the world, and subsequently were acknowledged to be the gods of the cardinal points."

-- E. A. Budge in *The Book of the Dead* (1895)

Budge further explicates that the four pillars holding up the sky, are also called the *"four blazing flames made for the Khu."*

Book 13 of the *Chilam Balam*, titled "The Creation of the Uinal" by the translator Roys, reports on how the Uinal, the 20-day month, "came to be created before the creation of the world." The remainder of Book 13 is composed as a song, attributing some quality to each of the 20 day names of the 13 numbered days of the month. At one point we have, "Then the following were set up in the middle of the land: the Burners, four of them." The "Burners" are named after the 5th, 10th, 15th, and 20th day of the month, then noted that "these are the four rulers."

There is little question that these four Burners are the four Bacabs, the Maya gods of the cardinal points, here represented, like in Egypt, as braziers. It is certainly a strange coincidence which cannot be neglected. We have to conclude that the two plasma plumes at the magnetic poles turned to arc mode near the Earth's surface or well above it. Something similar must hold for the east and west plumes, although it is difficult to make physical sense of this.

Four trees of the cardinal directions appear throughout Book 10 of the *Chilam Balam*. Two of the trees of Mesoamerica are associated with the east and the west, which I cannot place with certainty, as I noted above. At first I thought they might be the leading edges of the Absu, lit by the Sun, and seen rising up and widening directly from the east cardinal point and from the west. But after the Absu had disappeared, the four trees are sighted again two additional times, according to the *Chilam Balam*.

The plumes show up repeatedly in diverse cultures. I will suggest that the east and west plumes might be an image of the denser portion of a toroid of plasma encircling the Earth (the nearer Van Allen belt). It would thus appear at the location of the equatorial, overlapping it and rising at an angle. The edges of this tube would stand out, for the plasma would be denser along the left and right edge. In some Mesopotamian illustrations a circular form is shown above the stalk. This might be a portion of the circular toroid which composes the Van Allen belts. In this case there would not be the triple leaves (the birds) associated with the ball plasmoids of the north and south polar plumes. This might be a graphical shorthand, however, for in some Mesopotamian seals the tops of the plumes are shown as small lions.

Both China and Mesoamerica assign colors to the four trees, and as a result to the four cardinal points. The colors assigned in Mesoamerica (Maya) can be traced to the looks of the sky in these four directions. The tree at the north is white, as would be appropriate to a northern glow mode plasma plume seen from the northern hemisphere. The tree of the south is yellow, which is likely the coloration due to looking south through the color of the Absu, before it disappeared. The tree in the east is noted as being red only in 2349 BC and 1492 BC when only a single red ring of the Absu still remained (which I will claim was red). After 3147 BC, the east tree is listed as being yellow, although the translator of the *Chilam Balam* thinks this is an error. But the Absu most likely was colored yellow, buff, or amber. The tree in the west was always black. So reads the *Maya Book of the Chilam Balam*.

The colors of the east and west trees were most likely determined as the night passed and dawn came (Mesoamerica defined events at their completion). At dawn the east tree would reflect the light of the rising Sun. The west tree was in the shadow of the Earth at dawn, so it was always black.

The north tree would be the largest since the north magnetic pole is the most effective in gathering electrons. The first formation of this tree, soon after 3147

BC, was a monumental event, recorded in specifics not only in the *Chilam Balam* but also in casual reference in the *Popol Vuh* narrative. Additionally, the establishment of the tree in the north was monumentalized in AD 700 in the sculptured texts of the Temple Inscriptions at Palenque in the Yucatan. The central temple relates in part:

[with text added by archaeologists or me:]

"[On August 13, 3114 BC,]

13 Baktuns were completed.

1 year, 9 months, and 2 days after the new epoch began,

G1-prime [Saturn] entered the sky.

On February 5, 3112 BC, G1-prime dedicated it.

Wacan chan xaman waxac na G1 [Venus]

[raised-up-sky north-eight-house G1]

was its name.

It was his house of the north."

The use of "G1," Venus, rather than "G1-prime," Saturn, may be an error in Schele and Freidel's book, *A Forest of Kings*, from which I quote this inscription. However, this matches the tale from Egypt about the travel of Isis to the tree of the north, at Biblos, which included the coffin of Osiris (under which there was a fire, as would be appropriate for a plasma plume).

For the present purpose it should be noted that the raised-up-sky north-eight-house (or "edifice") was dedicated a year and a half after the start of the current era, as retrocalculated by the Maya. It is within expectations that it would take perhaps a year to develop a plasma stream in glow mode in response to a change in the electric field surrounding the Earth's plasmasphere, although it seems late. (The plasma starts in dark mode and then suddenly switches to glow mode.)

The plume is noted here (and in other records) because the raised-up-sky north-eight-house was without a doubt larger than anything else ever seen in the skies up to this point in time. It rose far above the previous polar location of Saturn. Seen from Mesoamerica, the Saturnian planets had hovered only some 20 degrees above the north horizon. "Saturn entered the sky," is noted because the planet had now moved (within a year and 9 months) across the sky and to the south. This had to be established first (in this text) because otherwise Saturn (G1-prime) would perhaps not have been able to construct his edifice. Mesoamerican languages are action based.

I think, from the constant use of names-with-numbers in the *Chilam Balam*, that north-eight-house signifies an eventual total of eight appearances of the plasma plume. There is one Maya record (a ballcourt marker at Copan) which claims nine appearances in the north. The *axis mundi* would certainly be well remembered if, as I would suggest, it was last seen again in 686 or 685 BC. [\[note 7\]](#)

If, as I have claimed, the plasma plume would impinge on the Earth at the magnetic poles, then certainly there should be some record of this for the north magnetic pole -- if the magnetic pole were located in the North Atlantic. As a matter of fact, there are historical assertions as late as AD 800, although somewhat fanciful, claiming a descent into the whirlpool created by the concentrated plasma stream. There are stories also told as late as the 19th century.

There are additional Celtic, Icelandic, and Norse "myths" which claim the whirlpool to emit a thunderous noise and flames. Some of the recollections might incorporate details from much longer ago than the 7th century BC. As with plasma streams today impinging on the atmospheres of Jupiter and Saturn, the incoming plasma bored a hole into the ocean. The rotational magnetic field surrounding the incoming electric current would set the water and steam into a spin. The concentration of plasma at the point of contact would change the plasma stream to arc mode. The boiling of the ocean water would produce the grinding noise. Among Northwestern European nations (Friesland, Denmark, England, and Norway) the whirlpool is known as the Maelstrom (or Maal Stroom), which translates as "grinding stream." Maps of the North Atlantic place the Maelstrom off the coast of Norway. [\[note 8\]](#)

The trees would fade with time, then suddenly disappear. As a result the trees will reappear again, as the *Chilam Balam* makes clear, with each major change in the Earth's orbit -- as, for example, in 2349 BC and 1492 BC. I will address these changes in following chapters.

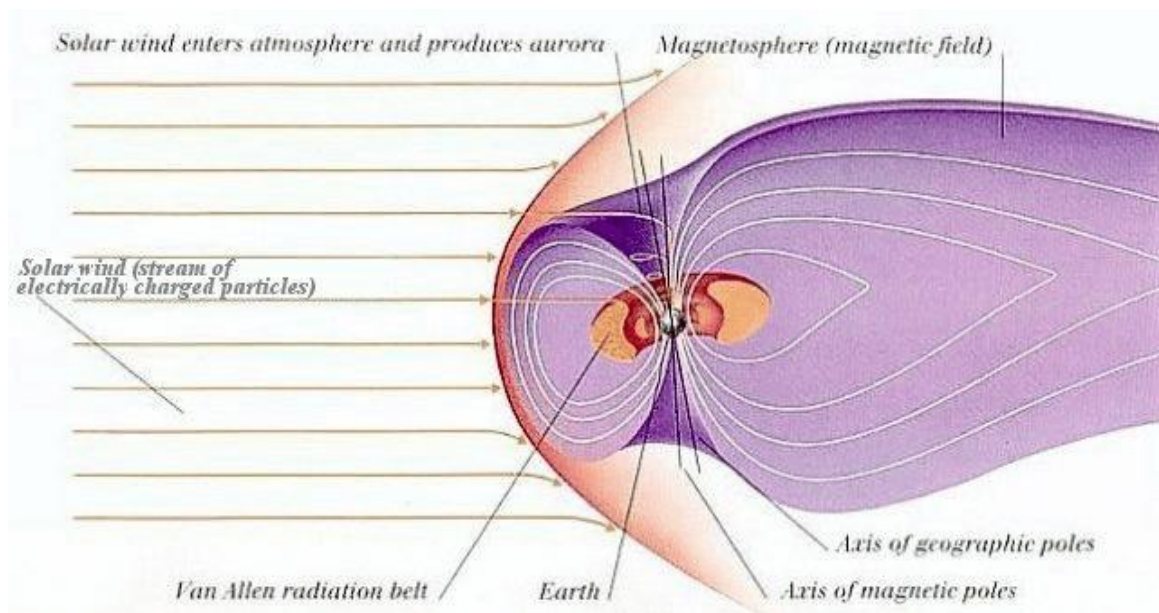
... the celestial cow

I should also note that if the left and right extremes of the surrounding Van Allen belt toroid could be seen as trees, or some such structure standing at the east and west cardinal point, then the remainder of the Van Allen belt -- the portion overhead and bridging the equatorial -- would also have been seen when it achieved glow mode.

The inner Van Allen toroidal belt, located above the Earth's equator, varies in size, extending from as little as 0.1 Earth radius (400 miles; 650 km) to 3 Earth radii (12,000 miles; 19,000 km). The outer belt reaches from 3 to 10 Earth radii. My estimate is that the Absu reached somewhat more than two Earth radii (8500 miles) above the equator.

The glowing Van Allen belt likely constitutes the "body" for the cow of Hathor, with the east and west plumes adding the legs. The view of the Van Allen toroid would have been smaller (further away) in the east and west, and obscured by the atmosphere, so that only the dense edges showed -- two in the east and two in the west.

The shadow of the Earth would have cut a dark oval into the bottom of the body, the underbelly of the cow, although the Van Allen belts are not, like the Absu, a narrow phenomenon which appears only in the plane of the equatorial. The Van Allen belts are much wider, and would have been seen thousands of miles away from (north and south of) the location of the equatorial. But if the inner belt lowered to 400 miles (650 km) (as it apparently does under conditions of high solar wind activity), a portion would certainly have been removed by the Earth's shadow.



[Image: Inner and outer Van Allen belts located within the magnetosphere of Earth.]

What is missing from this image are the head and udders of the cow. The cow was a familiar farm animal to the Egyptians, and clearly distinct from a bull. It

was the "bull of heaven" which had, only months earlier in 3147 BC, come through and destroyed the home of the Gods. There were no celestial cows among the Maya or Olmecs. There is mention in the Icelandic *Younger Edda* of AD 1200, but it is conflated with events of a much earlier era.

The cow would have been a form seen more or less in the center of the sky, on both sides (north and south) of the equatorial, and stretching from the east horizon to the west. The cow might have been a calf, as the Israelis under Moses claim as a sacred image. The cow or calf returned as an apparition a number of times throughout history (apparently seven times).

The Van Allen belts increase in size (mostly their thickness) with increased activity by the Sun. Today, after becoming very active, the Van Allen belts discharge to the space away from the Sun in a matter of days. This would suggest that the "cow" of antiquity also did not last all that long after appearing.

For the Van Allen Belts to show in glow mode there would have to be an influx of plasma from a source other than the Sun. Thus I would expect the "cow" to only show up (for example) at those times when Venus aligned between the Sun and Earth, and the electric condition of the Earth and its surroundings changed. The cow showed directly after the cataclysm had passed.

I'm suggesting Venus as a cause here because in Egyptian sources the cow shows up seven times. In Egypt it is the cow-eared Goddess Hathor who is identified with Venus at the times of an electric contact with Earth. She is frequently depicted as a cow and is also known as the "Seven Hathors" (see, for example, sculptures of the Seven Hathors at the Temple of Hathor at Denderah). In the Maya *Chilam Balam* Venus is called "Ah Uuc Cheknal," which translates "who fertilizes the maize seven times." The seven dates would have included the four times from (and including) 2349 BC (the "flood of Noah") up to and including 2193 BC (the fall of Akkad), plus two dates associated with the Exodus, 1492 BC and 1442 BC.

The seventh might be 776 BC Venus contact with Mars, or following the the 685 BC nova event of the Sum. The date of 3147 BC is not associated with an electric contact by Venus. I'll detail all of these in later chapters. [\[note 9\]](#)

... the green tree

There was also a "green tree of the center" defined in the *Chilam Balam* directly after 3147 BC but not at other times. The location is apparently the whole range of the southern sky, from the east to the west. This is Jupiter on his green mountain receding into the distance of the southern sky. Jupiter would appear first in the east or northeast and look small. The green shape would increase in size as the Earth overtook Jupiter, and diminish again in size as Earth passed Jupiter. The green mountain would thus seem to move across the whole of the sky in a period of months (and also on a daily basis with the rotation of the Earth). This movement through the south skies would allow the judgment that the green tree was located somewhere in front of the trees of the east, the west, and in front of the yellow tree of the south, and could be called the "green tree of the center."

In about 2900 BC Jupiter entered the asteroid belt, and the green mountain disappeared as the plasma outpouring changed shape. The green tree is not heard of again. In the Guatemalan *Popol Vuh* this apparition is a traveling mountain, named Zipacna, which (since we are dealing with a tropical environment) can be assumed to be green. The mummified Osiris of the Egyptians is always shown in Green. [\[note 10\]](#)

A New Era

Humans who had observed the celestial drama narratized the events with some difficulty and with considerable confusion, which shows in the later accounts which have come down to us. Both in Egypt and Mesopotamia, the stories of the first period after the breakup of the Saturnian system involved repeated councils by the Gods where agreements were reached and then broken and tradeoffs were made. It seems to have taken many years before matters in the sky were settled.

As mentioned earlier, late Egyptian legends speak of battles and periods of negotiations (lasting over 80 years) among the Gods as they determine who, between Seth and Osiris, is to rule which territory -- Upper Earth (Heaven) or Lower Earth (the Underworld of the south skies). But the story is eventually cast in terms of a division between Upper and Lower Egypt, rather than Upper and Lower Earth. As the planets Jupiter (Seth, Osiris, and later Re) and Saturn move further away from Earth, and Horus (Mars) starts to show up near Earth, the claims on territories change. Horus ends up as ruler over all of Egypt, both Upper Egypt and Lower Egypt, Osiris receives the Underworld of the dead in deep space, and Seth gets nothing. It is also not clear who Seth is.

The actual power of various cult centers over national politics varied over time. The worship of Horus is from Heirakonpolis (Nekhen), 400 miles (650 km) up the Nile river. Heirakonpolis probably initially gained control over all of Egypt with the establishment of the city of Memphis at the apex of the delta, thereby controlling trade up river, but did not retain power, which later passed to cult centers in the delta. Horus was also worshiped in the delta. Seth was worshiped in the region just south of the delta. In the delta Ra or Re was also worshiped, but his worship did not take hold with the pharaohs until the 4th dynasty. Ra, at that point in time, is Jupiter.

The tale about the negotiations, the *Contending of Horus and Seth*, is considered to be a 12th dynasty (circa 1500 BC) version of a much older myth. The actual descriptions of the contests and labors with which Horus and Seth are beset are ridiculous in the extreme. Isis is involved also, at times as the goddess Hathor. The following is a short narrative version adopted from <http://www.philae.nu/philae/Horus&Seth.html>;

"After another appearance before the court of the Gods follows a series of bizarre events. First, Horus and Seth change into hippopotami and stay under water for three months. [This was a contest of sorts.] Isis becomes concerned for her son and throws a copper harpoon, but it misses Seth and hits Horus instead. She retrieves it by magic on his complaint. On her next throw she hits Seth but he appeals to the brother-sister relationship between them, and she withdraws the weapon. Horus emerges out of the water, enraged that his mother spared the life of Seth. He cuts off her head and she turns to flint."

"Under water" is under the edge of the Duat. The ecliptic, low in the south sky in summer nights, would dip below the Duat perhaps a month after the vernal equinox and rise out again a month or so before the autumnal equinox. That accounts for three months under water.

We can also suggest that the "copper harpoons" represented plasmoids launched at Mars (Horus) and the other planet, Seth (whoever that is), in sequence. They would be copper colored, rather than the bright white of an electric arc, because they are seen through the screen of the Duat, which was most likely yellow, buff, or copper colored.

That Isis (Venus) would lose her head likely represents the sudden switch of the coma of Venus to dark mode (or a notable reduction in size) after releasing two massive lightning bolts. It might be the loss of her tail rather than her head. The

Egyptians would have seen the bolts travel along the ecliptic, like thrown harpoons, and explosively "detonate" at the two planets. We would expect plasmoids to be brilliantly white, for they are electrons in arc mode, but seen behind the Absu or Duat, which was colored buff or yellow, these would have changed to a coppery color.

If the *Contending of Horus and Seth* was created out of nothing as a narrative in the 12th dynasty (circa 1500 BC), then we have to ask how these people knew about the change in color -- the screening of the Duat had not been seen since 2349 BC. All but a single ring of the Duat had disappeared 850 years earlier.

That brings up the question of what planet here represents Seth. For the period directly after 3147 BC, when Jupiter is seen receding into the southern night sky after attacking Saturn, I would suggest that Jupiter is Seth and Saturn is Osiris. But somewhat later (differing by the "theology" of differing Egyptian nomes), it is Jupiter who is Osiris -- a mummified form depicted in green, and matching the description of the Quiche *Popol Vuh* as a traveling green mountain. At that point, or at some point, it is also likely that Mercury was identified as Seth, still on a very elongated orbit and always seeming to travel nearly the same orbit as Mars (as I will point out later). If Mars and Mercury traveled together, this would allow Venus to harpoon both of them within a short interval. Mercury also sported a large coma, polar plumes, and a tail. In fact, a globe will grow out of Seth's head in a later episode of this narrative, which in effect is Mercury developing an enlarged coma or returning a coma.

These details place the origin of the story in the era shortly after 3147 BC, but mixed in are much later elements. For one, Seth in the end is assigned to travel in the bow of the boat of Ra (Jupiter) to watch for the celestial snake Apep (details of Apep are in a later chapter). The "boat" form of Ra is the "shen" form associated with Jupiter after about 2940 BC but the snake Apep does not show up until after 2349 BC.

A few more discordant story elements are added, like the gouged eyes of Horus, and a whole "semen" episode.

"Later Seth finds Horus asleep under a tree and gouges out his eyes which he buries in the sand where they turn into lotus flowers. Hathor finds Horus and pours gazelle milk into his eye sockets, causing them to heal."

"Seth next invites Horus to his home, and makes a homosexual attack on Horus. Horus however catches the semen of Seth in his hand which he

shows his mother Isis. She in outrage cuts off his hand, throws it into the marshes. Then she makes Horus's phallus rise and catches his semen in a jar, spreading it on lettuces which Seth will eat. Before the council of the Gods Seth claims the homosexual domination of Horus, but Horus instead wants their respective semen to speak from where it is located. Thoth [who also plays Seth] calls the semen, and the semen of Seth comes out, not from Horus, but from the marshes where his hand had been thrown by Isis. Horus's semen appears as a gold disc on the head of Seth who now is humiliated."

The "eyes of Horus" will be recognized as the ball plasmoids at the end of polar plasma plumes, which must have been bright enough to light up the night. Horus was located in the ecliptic next to (sleeping under, that is, in retrograde motion) the southern plasma plume. This suggests that the initial plasma plumes after 3147 BC must have lasted for a half-century or more. "In the sand" is the last ring of the Duat, equated by the storytellers to the strand of the Duat ocean.

The totality of semen exchanges should be recognized as plasma in glow mode between planets and, in the case of the "swamp," with objects in the asteroid belt. The lettuce is an Egyptian variety which exudes a milky-white liquid when broken open. The court proceedings are eventually resolved as follows:

"The council now sends a letter to Osiris in the underworld, asking for advice. Osiris threatens them all if his son is not chosen. He will remove the stars in the heavens together with man and god alike and make them all descend below the Western Horizon. This causes the council to finally instate Horus on the throne of Egypt. Re states that Seth will accompany Re in the heavens and that his voice will be heard in the thunder itself."

Osiris (here possibly Jupiter) is obviously far removed, placing this ending well after 3147 BC, when Jupiter had entered the asteroid belt. The worship of Jupiter as Osiris dates from the end of the Old Kingdom, 2349 BC, when the first references to Osiris show up, and, as will be detailed in later chapters, Jupiter suddenly reappeared in his full mountain form.

When early pharaohs make statements about the conflicts or peace between the "two lands," they are speaking about Heaven as the Upper Land and Middle Earth as the Lower Land. Over time these terms Upper and Lower Land come to mean Upper and Lower Egypt -- the river valley region of the south as Upper Egypt and the delta region of the north as Lower Egypt.

In the end, in the *Contending of Horus and Seth* it is agreed that Osiris (now as Saturn) gets the Underworld and remains there, swaddled in strips of cloth like a mummy. He never again disturbs other planets. Jupiter remained active only a short time, then, about 200 years after Mars shows up, entered the asteroid belt, reduced the size of its coma, and started zapping asteroids which came near.

Egypt is awarded to Horus, who is held to be the resurrected Osiris, but in actuality is Mars now on an orbit which periodically overrides the orbit of Earth. This condition apparently started 80 years after 3147 BC and lasted some 300 years. Mars appears as an active and impressive ruler of Earth. By comparison, Jupiter does nothing except recede further from Earth. [\[note 11\]](#)

Within a hundred years of the initial disturbance of 3147 BC, both Mesopotamia and Egypt rebound to achieve the most stupendous growth in civilization ever seen. (Both also initiate the first dynasties.) This rebound stands as one of the most amazing facts of prehistory, a blooming of civilization often noted as "unsurpassed" by historians and archaeologists. This is duplicated in other places, as if the world suddenly woke up. Large-scale cultivation starts up right after 3000 BC in West Africa, the Indus valley (Pakistan), China, Southeast Asia, Mesoamerica, and South America. Agricultural production in Mesopotamia increases as never before, monumental stone architecture soon takes a leap forward in Egypt, trade is expanded, and writing suddenly proliferates. [\[note 12\]](#)

In spite of this progress, however, both Mesopotamia and Egypt remain conservative and rooted in the past. The temple religions and economies are now more tightly integrated into society than ever and become the justification for the kings and pharaohs who rise to fill the void left by the departed Gods.

The universal lack of an elite before 3100 BC is an outstanding and inexplicable difference between the culture before and after the flood of 3147 BC. Today we simply cannot imagine the existence of large egalitarian societies which somehow accomplished the extensive irrigation projects, food production, and trade which existed before 3100 BC. We are much more comfortable with conditions after 3100 BC, when kings, pharaohs, and emperors show up to lead the people.

We are a gregarious species and although we do not seek out leadership, after the removal of the powerful Gods, anyone who reached out to lead the people, would have been willingly accepted. Perhaps it was cast as a benign care-taking

initially. The first kings in Sumer are known as the "shepherds of the people." The new leaders everywhere take on the role of the Gods. [\[note 13\]](#)

Again, I have to point to the sky for the example of the behavior of those who assume the leadership as kings and pharaohs. The new leaders all derive from the established priesthood, and are often the primary servants of the local God. The new leadership understands dynastic succession as legitimate. It had been seen among the Gods. The new leadership sees battle and the death of others as a means of achieving power. This too could be inferred from the activities depicted in the skies. In Mesopotamia the new leaders remain as the kings of distinct theocracies. In Egypt the new leadership unifies the individual districts, with their individual Gods, and assumes for itself the identity of the one ruling God, Horus.

Special thanks to G Gilligan for pointing out the seven celestial cows of Hathor.

Endnotes

Note 1 --

To have the same apparent diameter (a half degree) as the Moon at the eventual location of 5.2 AU from the Sun, 480 million miles (773 million km) from Earth (using the tangent of 1/2 degree, with the Earth located at this time at 0.79 AU), the coma would have been:

$(\sin(0.5) / \cos(0.5)) * (5.2 - 0.79) * 93,000,000 = 3,500,000$ (5,600,000 km)
miles in diameter.

Plutarch's information can be verified, at least to within an order of magnitude. Near the closest region of the asteroid belt, 215 million miles from Earth (at 3.1 AU, with the Earth located at 0.79 AU at that time), the coma of Jupiter before entering the asteroid belt would there have looked about two times as big, thus twice the size of the Moon. Plutarch had suggested "trice." Within the asteroid belt the coma would have reduced in size because of the surplus of conducting agents.

Considering that the comas of comets a few miles wide at times exceed the diameter of the Sun, 864,000 miles (1,390,000 km), these estimates do not seem unrealistic for Jupiter, which has a diameter of 88,700 miles (143,000 km), and

today has a plasmasphere (in dark mode) which is 3.2 million miles (5 million km) in diameter.

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Note 2 --

In Egypt, as Isis, she is understood to have traveled up and down the celestial Nile (the ecliptic) in search for Osiris's body parts after 3147 BC. The Egyptians initially identified Venus as Neith, another warrior Goddess, and only later applied the names Isis and Hathor. The plurality of names probably stems from the religious democracy of Egypt, and would thus be names specifically in use at the temples of differing nomes. As I pointed out earlier, Neith originally was the ball plasmoid of the south skies, last seen in about 8347 BC.

The Sumerian and Akkadian Goddess Inanna is Venus, and narratives from 2300 to 2000 BC have her on repeated adventures, including visits to Lower Earth, that is, the Underworld (as in *Inanna's Descent to the Netherworld*). At each of seven gates of the underworld she is stripped of some item of clothing, and eventually she is hung from a hook. The seven gates are the rings of the Absu, used narratively.

The implication is that the orbit of Venus extended beyond the orbit of Earth, and at least periodically Venus was seen as an outer planet and visually slowed to a stop, in what is known as "retrograde motion." If at that moment Venus still had a visible tail, it would stretch away from the Sun as well as Earth, and thus would not be seen. I will suggest in later chapters that the orbit of Venus did indeed overrun the orbit of Earth in antiquity, at least until 1492 BC.

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Note 3 --

Robert Fritzius points out the lack of small craters, and the relatively few large craters, in an essay, "Is Venus a New Planet?" presented at the American Astronomy Society in 2007.

See [\[http://www.datasync.com/~rsf1/vel/NewVenus.htm\]](http://www.datasync.com/~rsf1/vel/NewVenus.htm).

Because craters are the anode burn marks of plasma in arc mode, small craters would not be expected on any planet with an extensive atmosphere, since the plasma strikes would be dissipated by the atmosphere. The same is true for Earth and for Saturn's satellite Titan. And yet, there are also far too few large

craters.

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Note 4 --

Robert W. Bass in 1974 pointed out that the original estimates of planetary orbital stability were made by Laplace in 1773, and have been quoted without question for 200 years. Bass writes:

"Laplace's theorem allegedly proving stability of the solar system (1773) was shown to be fallacious in 1899 by Poincaré; in 1953 dynamical astronomer W. M. Smart proved that the maximum interval of reliability of the perturbation equations of Laplace and Lagrange was not $10 \exp 11$ years, as stated in 1895 by S. Newcomb, but actually at most a small multiple of $10 \exp 2$ years."

-- Robert W. Bass "Can Worlds Collide?" *Pensee* (1974)

A few hundred years ("a small multiple of $10 \exp 2$ ") is vastly different from 100 billion years (" $10 \exp 11$ "). As suggested from the little data available from antiquity, it might be much less than that. The Earth / Moon system apparently became stable within a period of about 30 years. (See the next chapter.)

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Note 5 --

Milton Zysman first proposed something like this, in 1994 at a Velikovsky Symposium, for the era after 1500 BC when the Israelites followed a pillar night and day after the Exodus from Egypt. Zysman assumed this would be an extensive aurora. But auroras depend on gases in the Earth's atmosphere and upper atmosphere to achieve their colorful effects. The effect comes about through high-energy electrons in cyclotron motion colliding with low-pressure Oxygen, Hydrogen, and Nitrogen atoms. The aurora only extends about 60 miles (100 km) up from the surface of the Earth. A very intense aurora will extend up to 600 miles (1000 km) in altitude in a red glow from sparse Oxygen ions above the atmosphere. But even 600 miles is not enough to be seen worldwide, although intense auroras tend to be placed at lower latitudes. Above the 600-mile altitude the effect of the incoming electrons would be invisible, unless, as a plasma, it switches to glow mode.

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Note 6 --

The year glyph occurs already in predynastic times circa 3100 BC to 3050 BC, but, as far as I know, not before 3147 BC.

In Roman Republican times, staffs (Latin *Lituus*) shaped like the polar plumes were carried by the Roman college of augurs to "mark out a ritual space in the sky" in order to "indicate divine favor or disfavor" by the passage of birds (Wiki). This is of course the same instrument associated with the pharaohs of Egypt, where it is called a shepherd's crook by archaeologists. In actuality it represents the Pharaoh's control over time.

Today Roman Catholic bishops still carry staffs of the same shape ("crosiers") as a symbol understood to represent a shepherd's crook and thus suggesting their role as shepherds of the community. I might point out that the bishop's mitre also dates from late antiquity (although this is much disputed).

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Note 7 --

Ballcourt A-IIb at Copan in Honduras was built during the sixth or seventh century AD, and soon remodeled. The remodeling preserved three central alley markers, representing the mythological burial places of the father and uncle of Hunahpu and Xbalanque, the heroes of the *Popol Vuh*. Similar markers are found at Yaxchilan, Cerros, and other locations. But at Copan the carvings are well preserved, and can be read. Two mythological characters are shown flanking a ball in each marker. Only the ball of the central marker is in play (between Hunahpu and One-Death); the balls of the north and south markers are suspended by a twisted cord from overhead beams.



[Image: The ballcourt markers from Copan,
circa AD 700; after Freidel and Schele.]

A tree is shown on the outside area of the north and south markers. The tree of the north is labeled "Nine Successions"; the tree of the south is labeled "Seven Successions." If, as I suspect, the trees represent the polar plasma plumes of the north and south, then we have here an inventory of how many times the *axis mundi* reappeared. It would be appropriate to reappear more frequently in the north, since the north magnetic pole would facilitate a larger influx of electrons.

I can only list seven events where this might have happened -- 3147 BC, 2349 BC, 2193 BC, 1492 BC, 1440 BC, 747 BC, 686 BC -- each corresponding to a known change in the Earth's plasma condition. The dates of 1440 BC and 686 BC are less certain. The date of 685 BC could be added. I also have the suspicion that there might have been two additional changes in the orbit of Earth between 2349 BC and 2193 BC, which have remained unrecorded. All of this information will be developed in following chapters.

The name "Nine Successions" is one more "succession" than noted in the records at Palenque, where the first northern plasma plume is called "north-eight-house."

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Note 8 --

With reference to the Maelstrom, Giorgio de Santillana and H. von Dechend, in *Hamlet's Mill* (1969), reproduce, without much comment, two early maps, the 16th century *Carta Marina* (Olaus Magnus) and an illustration from Athanasius Kircher's *Mundus Subterraneus* (AD 1665). The first map places the Maelstrom off the southwest coast of Norway; the second map places it further north. Both locations are relatively close to land. In the 16th century the north magnetic pole was located south of Spitsbergen and west of Norway.



[Image: *Carta Marina* map and the *Mundus Subterraneus* map. After Giorgio de Santillana and H. von Dechend, "Hamlet's Mill" (1969).]

Santillana and von Dechend offer other worldwide mythological references, but most are descriptions seen from afar, and likely to represent events before or directly after 3147 BC. They vaguely note that the whirlpool is mostly located in a northwest direction from Greece (or north by northwest from Western Europe). In the end, with no physical model available to them, Santillana and von Dechend suggest that the whirlpool is a representation of the precession of the ecliptic, although they admit that this model "does not, of course, help to understand any single detail."

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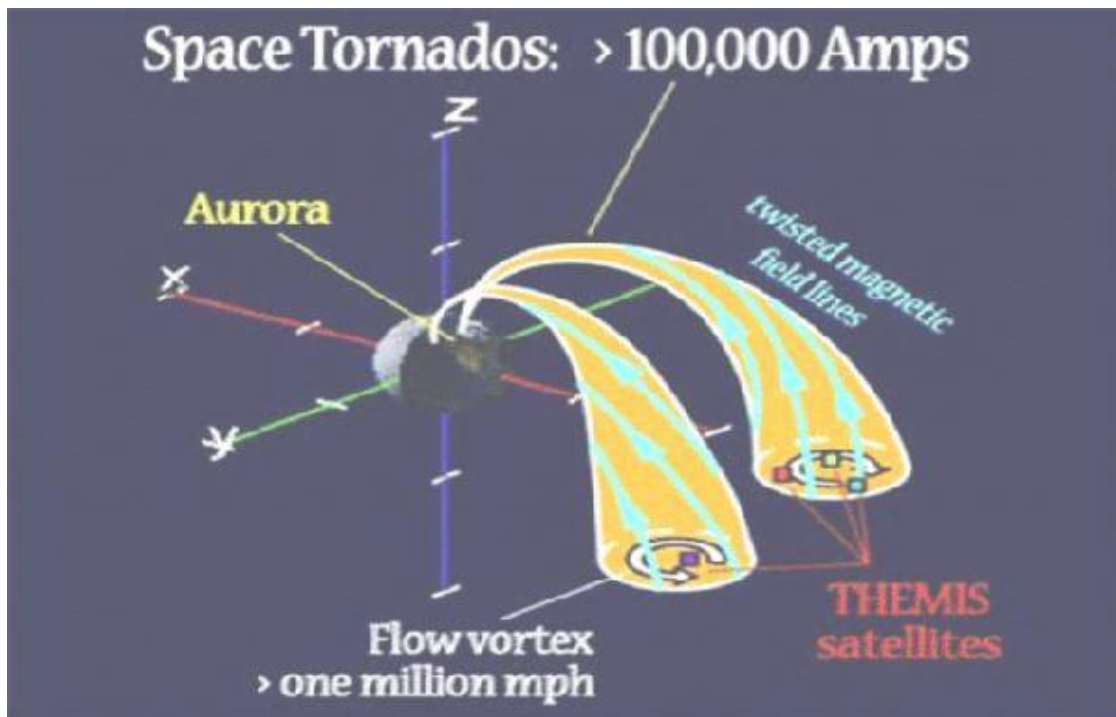
Note 9 --

The series of 7 dates which I have suggested may need to be altered, so that 747 BC (a Mars event) is added. The strong association with Venus (Hathor) in Egypt is probably because of four repeated electric contacts with Venus starting in 2349 BC. The sequence of events for 2349 BC is detailed in the New Kingdom *Tale of the Celestial Cow*, (recorded in some five tombs) which recapitulates the contact of 2349 BC and was the start of three additional contacts which ended the Middle Kingdom of Egypt in 2193 BC. More on this in the chapter "The Career of Jupiter."

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Note 10 --

When Marinus van der Sluijs put out the book *The Mythology of the World Axis* (2007), I started to investigate if plasma plumes might have been sighted repeatedly in antiquity. Even Nonos in circa AD 450, in his poem *Dionysiaca*, recounting the events of 685 BC, makes casual reference to a world axis, the *axis mundi*, writing, "Even the axis, which turns in the centre, began to totter through the whirling ether."



[Image: THEMIS mission tracks electric tornadoes in space;
Shown on the night side of Earth; after Andreas Keiling, UC Berkeley.]

It was the information from Mesoamerica (noted in the text) which convinced me that this was so. One soon realizes that the plasma phenomena could also be described by the directional trees mentioned repeatedly in the Maya *Chilam Balam*. In March of 2008 I added sections titled "Return of the Axis Mundi" to various chapters. Then a year later vd Sluijs wrote a piece for the Thunderbolts.info website (March 29, 2009), presenting information from a press release from UC Berkeley, which stated that NASA had discovered the (northern) plasma plumes, on the night side of Earth, bending up into the magnetosphere, and extending 40,000 miles (65,000 km) up -- as I had predicted about a year earlier. I did not initially propose two plasma plumes.

"The idea of a giant radiant pillar rising up from the earth to the sky would have sounded too fantastic to be true - until recently."

"In April of 2009, NASA's fleet of THEMIS satellites detected vast electrical tornadoes about 40,000 miles (65,000 km) above the night side of the earth, on the boundary between the solar wind and the earth's magnetosphere."

"Since the 1990s, a handful of 'plasma mythologists' had assumed the former existence of a stupendous, luminous sky column that was visible

from almost every part of the earth. The evidence for this was the prominent place allotted to this axis mundi or 'world axis' in detailed cosmological traditions from hundreds of cultures dotted around the globe."

The hundreds of cosmological traditions notwithstanding, vd Sluijs is here confusing the polar plumes with the Peratt column, discussed in a previous chapter. Obviously these polar plumes are not a "stupendous luminous sky column."

"The column was widely portrayed as a prodigious mountain, tree, rope, bridge, ladder or pathway and was universally characterized by notions of centrality, vitality, vorticity, and luminosity: the conspicuous position it occupied in the firmament earned it an association with the 'navel', 'heart' or 'centre' of the world; its agility made it seem as if it was imbued with life, like a giant divine creature breathing life into the surrounding cosmos; its filamentary extremities were subject to warping and twisting, while the column itself was seen to be entwined by spiraling filaments frequently compared to snakes; and the splendour of the light it emitted repeatedly invited comparison to the sun and to lightning."

"The difference between the mythical column and the tornadoes observed today appears to be one of scale only: an unusually strong bombardment of charged particles onto the ionosphere could have triggered the formation of a single collimated Birkeland current, of a semi-permanent nature, that was susceptible to a type of plasma instabilities known as 'Peratt Instabilities'."

-- Rens van der Sluijs

Well, not quite. "Could have" isn't close. The Peratt column was 400,000 miles (650,000 km) long, 10 times larger than the polar plumes. Otherwise I would agree with vd Sluijs that in a higher dark mode or in the initial level of glow mode the two separate "tornado" columns would merge, and form a single pillar. Only in high glow mode and low arc mode would entwined columns appear. I doubt if the polar plumes ever switched to arc mode except at its contact point with the ocean and into the Earth's upper atmosphere, for the concept of "braziers" are certainly expressed in Egypt, and "flames" or "lights" in the *Chilam Balam*.

I do not agree with some of the forms that the polar plume is being equated to here -- the mountain, ladder, navel, heart, and the center of the world. These forms, and others, are to be associated with the plasma connection from Saturn under conditions of plasma instability of extreme conditions (as noted in the text) -- and under parameters of a very large plasma connection extending over millions of miles, not thousands, and sustaining shockwaves which took months to form and propagate. A plume 40,000 miles long would not respond in that manner.

Van der Sluijs is confusing three distinct forms, which had only a casual visual relationship to each other: (1) the Peratt column propagated from the far south and which most often appeared near Earth as four lighted streams and bypassed earth (until 8347 BC), (2) the later singular column connecting Saturn in the north to Earth, which, because of its enormous extent, could support extensive discontinuities for months (until 3147 BC), and (3) the polar plasma plumes, which, even at 40,000 miles, were minor apparitions and which came and went seven or eight times.

Van der Sluijs fails to mention that the plasma plumes would have been seen rotating from the east to the west every night -- "waving in the wind" like trees, or as smoke blowing down from fires, as depicted in Egypt. This sight could have been determined from the information presented by NASA. But NASA's plumes currently are in dark mode.

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Note 11 --

We may think of Mars as a small planet, but when it appeared above Earth in this era it would have been gigantic, exceeding the previous apparition of Saturn in size. This happened not just in Egypt, but throughout the world, as signified by the fact that within a hundred years after Mars was last seen "on his mountain," pyramid construction starts everywhere. That suggests (as, for example, Patten and Windsor have done) that Mars continued to be seen periodically nearing Earth, but did not get close.

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Note 12 --

There is a boom in population after 3000 BC in Mesopotamia, which cannot be attributed exclusively to agriculture (which had been long established), or the fact that farmers tend to have more children. Population growth seems to have

been very limited during the "Age of the Gods" and earlier -- almost a zero growth rate. One wonders if radiation from the plasma stream (which included ultra violet, radio, X-rays, high energy atomic particles, and gamma rays) did not inhibit births. In Sumer, in the second millennium BC, there are extensive laws (and records) governing adoption -- perhaps a holdover from previous times.

Exponential growth, however, often masks slow beginnings. We might at least acknowledge a new beginning for humans after 3147 BC.

[\[return to text\]](#)

Note 13 --

It is currently presumed that there were kings in Egypt before the first dynasty, often presented as "Dynasty 0" and including kings named after a number of animals -- Scorpion, Catfish, and others. But these names are only known from label inscriptions, and although they might point to some local chiefs or chief priests of temples, it is very doubtful if these were kings of a dynasty. It is difficult to determine anything for sure since all the graves were robbed in antiquity. However, and significantly, none of these predynastic kings of Egypt were acknowledged in the official chronicles. Additional notes on the predynastic kings may be found in Appendix A, "Chronology."

[\[return to text\]](#)

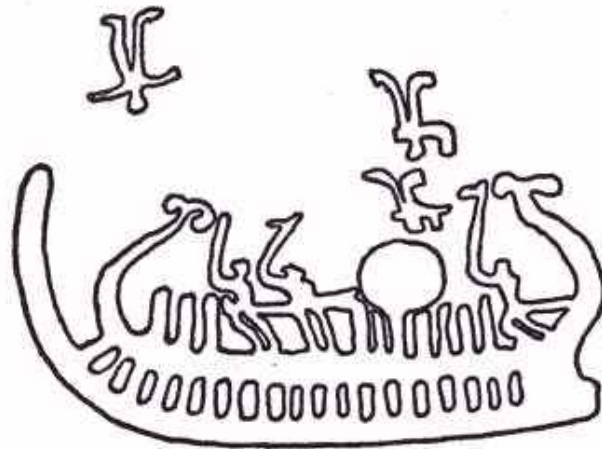


Chapter 18: Pyramids and Henges.

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This chapter starts (once more) after the flood of 3147 BC, but I will concentrate mostly on human endeavors instead of celestial manifestations, although the visits by Mars as Horus need to be recounted before we dwelve into pyramids and henges. The first civilizations and the first kingdoms (as I have already noted) appear in Sumer and Egypt at this time -- in fact, within 100 years after the close of the "Era of the Gods." Horus (Mars) makes regular visits over a period of 300 years starting about 3067 BC. Humans start building pyramids after Horus fails to return.



[Image: Bronze Age (circa 800 BC) petroglyph, Denmark. The "Sun" is carried through the sky on its ship. Note the oars. The boatmen are holding celts aloft. A figure is falling in from above. The other two figures are thought to be antlered elk. The composite is based on Mars and its two satellites, but is thought by others to represent Jupiter as the Midnight Sun. Source unknown.]

Horus on His Mountain

When the Gods left after 3147 BC, the "Era of Kings" starts. It starts with the devastating flood which the Mesopotamian *King List* tersely recounts as, "and then the flood swept over."

I originally used a date of 3114 BC as the end of the "Era of the Gods," but a more likely date is 3147 BC. The date of 3114 BC is the beginning of the current era (and the end of the previous era) as retrocalculated from the Maya Long Count chronology. This chronology takes no account of a number of changes in the length of the year, and is thus out of sync with solar years by some 35 years.

The date of 3147 BC, which I will use, is based on the clear intent of the Olmecs in instituting the Long Count in 747 BC. See the chapter "The Maya Calendar," for details on this.

Recovery after the flood was quick -- less than two hundred years in Northern Mesopotamia and much less time in Egypt -- and ushered in the seminal age of the civilizations of remote antiquity. In Mesopotamia and Egypt we see a development of agriculture, the scope of which goes beyond anything seen in the preceding centuries. Writing developed rapidly, and possibly independently, in the two regions. Work started on larger and larger monumental structures, culminating (400 years later) in the giant pyramids of Giza. The expansion of civilization after about 3100 BC seem to be indicated with the sudden elaboration of certain graves -- those of selected individuals, which are generally thought of as rulers by archaeologists. The age of kingdoms has started. The graves of the first pharaohs of Egypt date from the century after the flood. Elaborate graves show up in Mesopotamia at about the same time. [\[note 1\]](#)

Loosened from the grip of Saturn in 3147 BC, Earth and Venus were cast off on nearly identical elliptical orbits, Earth with a year of 240 days and Venus following Saturn's old orbit with a year of somewhat more than 225 days (perhaps 230 to 240 days). In aphelion (the furthest location from the Sun) the orbital path of Venus extended past the orbit of Earth, but Venus came closer to the Sun at perihelion (the closest location to the Sun) than the Earth did.

Mars and Mercury were not released until 80 years after 3147 BC, if we can assume that the very late recollections of the Egyptians, *The Contendings of Horus and Seth*, is correct. At that time Saturn had entered the first of the

asteroid belt, and loosened its grip on Mars and Mercury. This late and far-distant release accounts for the very elliptical orbits which these two planets assumed, although almost nothing is known of the orbit of Mercury, except that we can assume that it was nearly identical with the orbit of Mars. Mercury thus frequently swept past the Earth, and continued to do so periodically until 686 BC.

Mercury shows up iconographically in circa 3050 BC (a date which I think is too early), depicted as the sandal carrier of the figure called Narmer on the Palette of Narmer, where Narmer clearly is Mars, that is, Horus, enveloped in a plasma stream from Saturn to Earth. Mercury, as far as we can tell (and verified by the text of the *Chilam Balam*), shows up as a constant companion to Mars. The *Chilam Balam* reads:

"With it descended Bolon Mayel [Nine Fragrances]; sweet was his mouth and the tip of his tongue. Sweet were his brains."

... where "it" is Mars, mentioned a few lines earlier.

Mercury of course, is Thoth of the Egyptians -- Hermes or Apollo of the Greeks, Mercury of the Romans. It is not the Moon, as some current mythologists think, a concept which is based on not allowing Mercury any other place in the solar system of the past except on its current orbit very close to the Sun.

Subsequent to this time period Mercury shows up again periodically, suggesting that the second nodal point of its orbit may have rotated away from Earth's orbit, to return hundreds of years later (as Mars certainly did also). Thoth seems to assume a presence again (with Mars) after 1936 BC, which is the time of the destruction of Sodom and Gomorrah. Mercury and Mars appear a third time throughout the 8th and 7th century BC. Mars and Mercury almost universally become identified as the celestial twins. Their appearances are at approximately 1130 year intervals.

I became aware of Mercury while sorting out the details of the Maya *Chilam Balam*, where it looked as if Mercury showed up near Earth at the same time as Mars in the 8th and 7th century BC. In the *Chilam Balam* Mercury is recorded as appearing 9 times during the period when Mars also showed 9 times, as indicated by their name prefix "Bolon" (for both Mars and Mercury). At the time I was doing an analysis of the *Chilam Balam* I had already surmised that Mercury would have been one of two planets seen close to Earth in the earlier period of 3067 BC to 2700 BC (the other being Mars, of course). This defines an

interval of about 1150 years. I determined the midpoint between the earliest showing in 3067 and the much later first showing in 806 BC with simple arithmetic: the interval would remain the same for circular orbits.

It is perhaps easier to track the orbit of Mars, and, in fact, at a later time it is possible to make some guesses of the orbital parameters from scarce data incorporated into the calendars of Mesoamerica, and to deduce some orbital values from the considerations developed by Patten and Windsor (in *The Mars-Earth Wars* (1996).

Mars's orbit thus initially started much further from the Sun than today (as did Mercury). At aphelion the orbit grazed the edge of the asteroid belt; at perihelion Mars periodically rode over the orbit of Earth. Mars first showed up close to Earth probably in circa 3067 BC (80 years after 3147 BC). As I pointed out above, the curious thing about Mercury and Mars is that both in the period directly after 3067 BC and in the 8th and 7th century BC, they show up (or seemed to show) together. [\[note 2\]](#)

The evidence for the orbits of the inner planets after the event of 3147 BC consists of the fact that these orbits represent the conditions most likely to allow the series of interactions which would happen over the next few millennia. See Appendix B, "The Celestial Mechanics," for additional details. Year counts and dates are developed in Appendix A, "Chronology Notes."

The *King List* reads, for the first king after the flood, that "Kingship again descended from Heaven." This was likely to be the appearance of Mars close to and above the Earth in circa 3067 BC. Mars would continue to "visit" Earth at intervals averaging 30 years as long as the inclinations of the orbits of Earth and Mars were favorably aligned. In fact, based on data from after 806 BC, it looks like Mars passed close to Earth every 15 years, alternating a course set for the Sun (on year zero) with a return overflight (or close passage) in coming from the Sun (in year 15).

Some of these "visits" consisted of destructive close passes, where Mars passed close to the Earth's surface, resulting in traveling lightning strikes, hurricanes of burnt material, and seismic disturbances. We know this from the 8th and 7th century BC, from the archaeological conditions at the sites of Sodom and Gomorrah, and from sparse remarks on the early history of Egypt by Manetho.

Mars would have repeatedly been sighted every year and a half over an extended period of time, since the orbits and the overpassings all manifest on a circular

coordinate system. Even if orbital periods changed (due to other causes), the intersection of these orbits would repeat on the same calendar dates. The sightings of Mars, even without electrical contact, would occur at 1.5-year intervals of 240-day years. (The synodic period of Mars at this time would have been 360 days.)

With the reappearance of Mars, the Egyptian priesthood was suddenly vindicated in its belief in resurrection. The suddenness with which the concept of a life after death takes hold in Egypt after 3147 BC, is astounding, although it probably existed already, based on the assumed function and purpose of the southern ballplasmoids.

Initially a further existence among the stars and planets (the home of the Gods) was limited to the pharaoh, but by the time of the first dynasty (after circa 3050 BC) the privilege of participation had spread already to the elite of the court, and would eventually be extended to everyone.

Today, of course, the idea of a life after death is nearly universal among contemporary religions, with Theravada Buddhism and Judaism being, for example, exceptions. The concepts spread only slowly in Europe with the introduction of Christianity, although there were ideas about resurrection extant among the Celtic tribes at that time, but not among the Greeks and Romans.

The only tie to a more remote antiquity for these ideas would seem to be concepts derived from the parades of animals seen in the skies and recorded by the first Cro-Magnon in Southwestern Europe, and, of course, seen and pondered upon by everyone else, and everywhere else, over the next 30,000 years. Plus, especially, the objects or beings seen traveling along the four overhead lines of electrons toward the south between 10,900 BC and 8347 BC.

... the mountain

In about 3067 BC, Horus (Mars) first appeared from some location in the ecliptic of the south sky, looming larger and larger until it was obvious that it would reach Earth. Horus was understood to be the resurrected Osiris, or (more logically) the son of Isis by Osiris, even though Osiris had been dead for some time. But he had been seen with an erect penis projecting through his mummy wrappings. He was depicted as such in statuary of the delta region as the God Min. When the worship of Osiris takes hold after the fifth dynasty, Osiris is always shown as a standing mummy and ithyphallic. [\[note 3\]](#)

Mars would have seemed to slow as it neared, since both Earth and Mars were at this point about the same distance from the Sun and thus traveling at nearly the same speed. As Mars reached closer to Earth a plasma stream would form between the two planets. Mars would have an unbalance of negative charge (because it came in from the region of the asteroid belt). Earth held the surplus charge, since it was a much larger globe, and it was Earth which bolted Mars.

Because Mars is half the diameter of Earth, the stream of plasma would have looked like a conical mountain, leaving the Earth's ionosphere and converging to a smaller truncated cone on reaching the surface of Mars.

The details of the mechanics are this: the plasma stream could easily have traveled ten or twenty Earth diameters -- making the distance to Mars 80,000 to 160,000 miles (130,000 to 260,000 km). This is considerably closer than the distance to the Moon today (250,000 miles). Mars, which is twice the diameter of the Moon, would have looked like an absolutely giant sphere in the sky.

Any view of this stream of plasma in glow mode would have been severely foreshortened to people viewing this. Instead of a 100,000-mile-long stream of plasma (as a lateral view from space might reveal), it would have looked like a truncated geometric figure. Because the edges of this would have been denser, it would easily have looked like it had flat sides, and was therefore rectangular -- like a pyramid. Its shape would also have suggested a chair or a seat. The idea of a chair -- a seated God -- becomes the iconography for depiction Gods.

The pyramidal shape beneath Mars was the sacred mountain frequently referenced in ancient literature. Appearances of the mountain of Mars lasted a hundred years longer than Jupiter's mountain, which disappeared in about 2860 BC.

Jupiter and his green colored mantle, a plasma outpouring from its south pole, was understood to be the standing mummified figure of Osiris, and was seen receding into the night sky. The giant mountainous lower coma of Jupiter had initially appeared in 3147 BC. It disappeared in about 2860 BC, when Jupiter entered the asteroid belt -- 100 years before the visits by Mars ended.

I initially thought the cone of plasma of Mars could only have happened if Mars overrode Earth at Earth's North Pole. That was my view on things from a grand exterior perspective, and partially based on keeping the conical throne viewed in daylight. But on further reflection I realized that the cone of plasma would still be understood as a mountain even if this happened with Mars in a lateral

position with respect to Earth, and even as earth kept rotating and Mars kept advancing past Earth.

Certainly the cone would show when Mars was past the shadow of Earth: in the pre-dawn sky or after dusk. When Mars moved behind the Earth in the darkness of night, the cone would probably not be seen at all, especially as Mars passed by Earth at a considerably closer distance. This would be the time of massive electric discharges -- rather than the mostly benign transfer of electrons via a glow mode plasma exchange.

The phrase "coming to sit on his mountain" for Mars/Horus would seem to have reference only to these periodic approaches. Jupiter did not "come to sit." It remained on its mountain form, day and night. When Mars passed behind Earth, its seat would disappear. The idea that everything goes out of control when a celestial god gets up from his seat is a concept which will remain active for a thousand years or more.

The mountain form of plasma did not start to glow at the Earth's surface, but more likely some hundreds of miles above the ionosphere, which is located about 200 to 600 miles (320 to 1000 km) above the surface of the Earth. Everywhere the cone would appear as a squat mountain with sharp edges (where the plasma was most dense), and thus approach the typical look of the later pyramids whose sides rise at an angle of near 60 degrees from the horizontal and are constructed in rectangular shapes. When backlit by the Sun, the cone might easily have passed for a pyramidal structure. In the absence of pyramids, or any multi-story temples, it would be called a mountain. [\[note 4\]](#)

In addition to the infrequent very close (and damaging) passes of Mars, at other times Mars would show up near Earth, but on different calendar dates, and would pass above the Earth (but not likely below). And again, a conical plasma stream would develop as Mars passed over the Earth. The effect would be nearly the same except as when Mars passed directly over the northern hemisphere of Earth, except that the cone would be seen to rotate around the North Pole of the Earth. During such visits, Mars would seem to sit for a period on the conically shaped "mountain" throne of plasma streaming from the Earth's ionosphere. [\[note 5\]](#)

The rotation of the Earth would make it look as if Mars rose and set, that is, moving from the northeast horizon and downward at the northwest horizon. The movement from the east to the west on a daily basis (perhaps lasting only a few

days) would continue at night as the cone was lighted by the Sun from the daylight side of Earth.

The result of this was that religious structures were no longer oriented northwest to the apparent strike points of the arc of the previous era, but were aligned to the true geographic north, the centerpoint of the traveling mountain of Horus.

The plasma connection explains the strangely worded Egyptian appellation of Horus, "rising on your mountain" -- when there were no mountains to be seen from Egypt. This truly was Horus, as the resurrected Osiris, coming to sit on his Earthly throne and rule Egypt. The tale of Osiris, resurrected as Horus, will stand for more than 3000 years, although it is only incorporated into Egyptian religious practice after 2349 BC. By the time of the first pyramid texts (of 2349 BC), which quote from what will eventually be known as the *Book of the Dead*, the spells and prayers which invoke Osiris and Horus were already 700 years old and firmly established (with some dating to much earlier times). They change very little over the next 2500 years. I should also point out that, except for the very few pre-dynastic kings and one of the pharaohs of the second dynasty, all the kings or pharaohs have "Horus names." [\[note 6\]](#)

It can be assumed that Mars returned with some regularity, since the visits depended only on the regularity of planetary orbits and the precession of Mars's and Earth's elliptical orbits (known as apsidal precession). As mentioned above, the synodic period of Mars was 360 days at this time, so that Mars would approach Earth every year and a half (the Earth's year being 240 days). The positioning of Mars over the Earth might last a few days. [\[note 7\]](#)

One would expect that as Mars approached Earth it would be gravitationally attracted. But there is no indication that the orbit of Mars was changed at all in nearly 3000 years. Patten and Windsor, in *Mars-Earth Wars*, use the concept of gravitational attraction to suggest a change in the Earth's orbit (the length of the year) and the location of the Moon. But the movement of the planets is overwhelmingly controlled by the Sun and inertia. Catastrophists researchers (Patten and Winsor included) seem to completely neglect the momentum of planets -- which keeps them from making any changes in their orbits.

It should be recognized also that the mass of Mars is considerable; it cannot be compared to a meteorite or other bolide which certainly will experience the Earth's gravitational attraction. It is the orbital momentum of Mars (its mass times the square of its orbital speed), which will carry it forward as if only the

Sun's gravitational pull keeps it on its orbit, even when Mars was closing in on Earth.

If Mars overrode the orbit of Earth, as I have suggested, we can be certain that neither gravitational nor electric interactions would change its orbit significantly. Only the inclination of the orbits to the equator of the Sun might be effected. Considering the immense values of forward momentum involved in travel along orbits, even changes in inclination would be all but undetectable. [\[note 8\]](#)

It could also be suggested that there are radical variations in the number of years between close approaches of Mars, for this could be seen in the reigns of kings in Mesopotamia (at Kish) and Egypt (the first two dynasties). These last for periods which only average 30 years, but are as short as 24 years and as long as 36 years. The reign lengths are, at any rate, much too long to make sense for human kings. The ten patriarchs of the Bible born after Noah (from Shem through Abraham) were each sired when their fathers were 29, 30, 32, or 35 years old. This section of the Bible records the repeated visits of Mars as the appearance of new generations of patriarchs.

The "visits" by Horus, as seen from Earth, were thus seen as an approach of Mars from deep space, followed by a seating on the plasma mountain, a circumambulation of the Earth (visually caused by the Earth's rotation), after which Mars was headed out for the region of the Sun (or returned to the deep reaches of space). [\[note 9\]](#)

Every observer in Egypt, Sumer, and among the shepherd forefathers of Abraham, considered that Mars had come out of the far distant sky as a resurrection of his previous self or as a new God or person altogether. This is particularly obvious in Egypt, where apparently every new appearance of Mars/Horus was understood as a newly resurrected Horus. In Sumer, each in the series of kings is described (as Mars) as distinct personages, with distinct qualities and behaviour.

It is certain that this type of thinking, which would be totally foreign to us, derived from the 7000 years of observations made in the past, when it was understood that all animals and humans traveled south after death, via the lines in the sky, to go to the large plasmoids. No one ever traveled north.

It seems that the "Sed festival," which required the pharaoh to race along a course and to be twice recrowned as king, might have been suggested by the

behavior of Mars. Predynastic ceremonial objects (grave goods labels), dated to before 3000 BC, already suggest the Sed festival. This strongly suggests a much older tradition as the basis for the Sed festival. [\[note 10\]](#)

The engraved labels are recognized today because the iconography remained the same for the next 3000 years. By the third dynasty, circa 2639 BC, separate buildings and plazas were constructed for this purpose as part of the pharaoh's funeral temple, so the festival could also be performed after death.

"One of the most important elements in the heb-sed [Sed festival] was a re-enactment of the coronation. In this ceremony a procession led by a priest would enter those of the chapels surrounding the heb-sed court in which were gathered the gods of the nomes of Upper Egypt. Having obtained from each god consent to renew his kingship, the king would be conducted to the more southern of the two thrones, placed on a dais beneath a canopy, in order to be crowned with the white crown of Upper Egypt."

-- I.E.S. Edwards *The Pyramids of Egypt* (1972).

This note by I.E.S. Edwards seems to make clear that there was no conquest of the delta by the forces of Upper Egypt. There was, instead, the permission granted to rule, or at least to represent the nomes. If indeed these ceremonies dated back to the time of the southern plasmoids, there would have been thousands of years to reach such agreements among the many independent nomes.

"A similar ceremony would be repeated in the chapels of the gods of the Lower Egyptian nomes before the king ascended the northern throne to receive the red crown of Lower Egypt. The unification of the two kingdoms would be symbolized at a later stage by lacing lotus (or lily) and papyrus flowers around a stake driven in the ground."

"The significance of another ceremony in the heb-sed is not so apparent. The king, carrying a flail, would run a fixed course, accompanied by 'the priests of the souls of the Nekhen'."

-- I.E.S. Edwards

The "nomes" are the separate districts of Egypt, some 20 of them in Upper Egypt and an equal number in the delta, each with their own Gods, temples, and temple administration. The "Nekhen" are the previously deceased pharaohs

(called "falcons"). Notice the double enthroning, or as Edwards calls them, "coronations." I suspect the course was run between the coronations. As always, the ceremonies of the humans were those first performed by the Gods.

The previous kings -- the Nekhen -- were also Gods. They were known, into the 5th dynasty, as "the followers of Horus" (although this is not clear). More on this below.

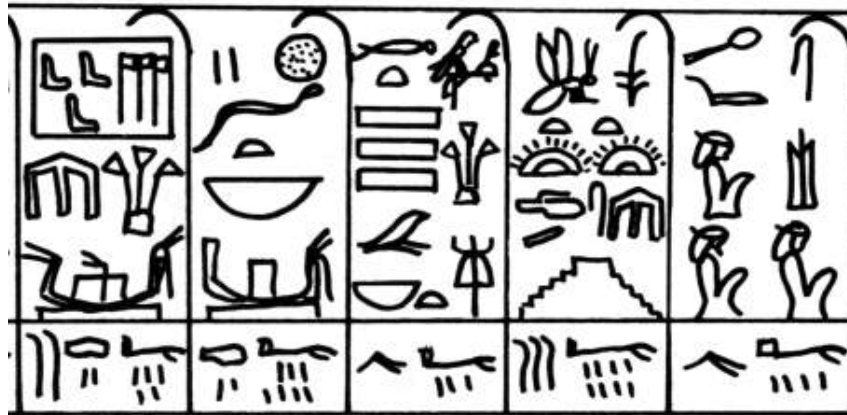
Egyptian records (the *Turin Papyrus*, and the writings of Manetho) give Horus a total life span of 300 years, which would mean that Horus would have returned 10 times between 3067 and 2770 BC, if a 30-year interval held for all of that time period. The Sumerian list of the "kings after the flood" adds up to 300 years and includes 20 "long-lived" kings up to about 2700 BC. But, counted in sets of two, these reduce to some 10 distinct pairings of periodic crossings of Earth's orbit or close approaches by an entity in the sky, which averages to 30 years, but varies by 4 to 5 years in both directions. The variation may be due to the actual lifetimes of kings or chief priests who played the role of God. [\[note 11\]](#)

The Palermo Stone

The orbital period of Mars as seen from Earth (its synodic period), was 360 days. I have developed this in an endnote. The Olmecs, predecessors to the Maya, apparently kept track of the regular return of Mars to the same location in the sky, and codified this into their calendar. Mars would have shown up near Earth every year and a half (years of 240 days). This implies a different orbit for Mars from that of today, although even today Earth passes by Mars every two years. But in the period directly after 3147 BC, Earth was on a considerably smaller orbit, and Mars on a larger orbit than today, and on a much more elliptical orbit, extending to the region of the asteroid belt.

Since Mars is about twice the diameter of the Moon, to appear as twice the size of the full Moon, Mars would have to approach to within 125,000 miles (200,000 km) of the Earth. Mars would show as a red disk in the south sky at night. At this distance Mars would be within the plasmasphere of Earth, and the "mountain" would form in approaching Earth and in leaving the vicinity of Earth. The cone of plasma would be seen as Mars approached Earth, and as it left, but not when Mars passed very close to Earth on the night side.

After Earth passed Mars (or Mars passed Earth), Mars would have disappeared from view for the next few solar years.



[Image: Palermo Stone, partial record of King Den of the first dynasty, circa 2950 BC. The text reads from right to left; each block is introduced with a "year glyph," the curved line at the right edge of each year's record. The lower register records the height of the Nile at flood time. A few hieroglyphs stand for whole words; the rest represent sounds. Year names, from the right (1) Striking the bedouin. (2) Appearance of the power (king) of Upper and Lower Egypt; Sed festival. (3) Counting of the people (of the four directions). (4) Second feast of Djed. (5) Plan of a temple called "Thrones of the Gods," feast of Sokar. Section from P recto, bottom register; after Michael St. John.]

The *Palermo Stone* records the yearly appearances and visits of Mars. The *Palermo Stone* is a carved basalt block from the Fifth Dynasty (circa 2550 BC) of the Old Kingdom, unfortunately shattered and badly worn, and reduced to seven small fragments. The *Palermo Stone* records the Gods, the "Followers of Horus," and some of the pharaohs of the first five dynasties, in that order. For each of the pharaohs (on the fragments we possess) there is a catalog of years, with each year named after an important event, for example, "The Year of the Cattle Count."

There are some six distinct events which are recorded repeatedly on the fragments we have -- plus military excursions into the region adjacent to the delta, the acquisition of desirable materials like honey or lumber, the building of ships, plans for new temples, and other mundane activities. The frequently recorded events (for which years are named) are:

- "The Appearance of the King of Upper Egypt"
- "The Appearance of the King of Lower Egypt"
- "The Followers of Horus"
- "Union of the Two Lands" followed by
"The Circumambulation of the Wall"
- "The Counting of Cattle"

The "Counting of Cattle" at later dates is often recorded as "The 'nth' Counting of Cattle." The height of the Nile at flood time was also recorded for each year.

The year-names listed above should actually be translated somewhat differently, for archaeologists have rendered the original phrasing into terms more familiar to us. "The Appearance of the King of Upper Egypt" should read as "The Appearance of the King of the Upper Land" or even as "The Appearance of the Power of the Upper Land." The Egyptians called their country "The Land"; the Greeks called it "Egypt."

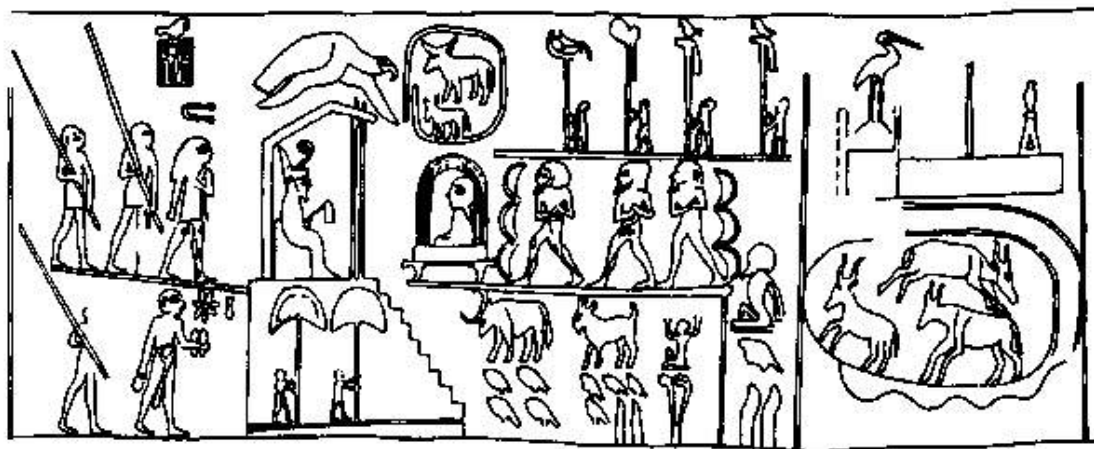
The "appearances" of the King of the Upper Land or the Lower Land happen regularly every two years, although not always at exactly two-year intervals. At times we read of both events happening in the same year. Interspersed at two-year intervals is the year-name "The Followers of Horus."

What exactly are these events? Archaeologists have suggested that the "appearances" were visitations of the pharaoh to the delta (Lower Egypt) and up river (Upper Egypt), perhaps as celebrations or as gift-giving opportunities. That is, "appearances" were made by the pharaoh to the two separate sections of the country. The pharaoh otherwise resided at Memphis, the city at the apex of the delta, and thus exactly between Upper Egypt and Lower Egypt. Memphis had been founded by the first king of the First Dynasty. Memphis controlled traffic between Lower and Upper Egypt, and in effect constituted the "unification" of Egypt.

Similarly the "Union of the Two Lands" was thought to be a celebration of peace (after another rebellion had been squashed), done with a walk (some original texts are translated to "race") around the outer walls of Memphis. Memphis had massive walls in antiquity to keep the Nile from flooding the city. Memphis was known as "White Walls."

... Sed festival

The "Union of the Two Lands" with the "Circumambulation of the Wall" is always shown as the first year-label for a pharaoh. It might be suggested that the "circumambulation" is the Sed festival. It might also be suggested (and I suspect this) that the pharaoh was replaced when Mars again showed up near Earth, and thus at 15 year intervals.



[Image: A cattle count of large and small animals, and other activities. Scene from the Narmer Macehead, circa 3050 BC. After Marshall Clagett.]

A scene depicted on the Narmer Macehead (circa 3050 BC), shows Narmer's name tag on the upper left. On the top right is a depiction of the temple at Buto in the delta (others suggest the temple at Nekhen, Hierakonpolis). Three running figures between triple lunates are suggested as representing a Sed Festival. The lunates are boundary markers.

Poles carried by four figures at the top are supposedly the standards of four of the nomes of Lower Egypt (actually, there are 20 nomes in the Delta region). From other sources these are thought to be the "Followers of Horus" instead, I feel that they much more likely represent the four cardinal directions, discussed in the previous chapter.

Two of the four standards depict the hawk of the east and the hawk of the west. The third standard, the stomach or placenta sign "lugal" (the Mesopotamian glyph for "king"), signifies "the south" (and thus the earlier ball plasmoids), and the fourth standard, a jackal on a plow, signified "the north," representing the constellation Ursa Minor. The east and west standards each seem to have a vertical banner like a flag attached. This occurs also in Sumerian iconography: two standards with banners attached and animals on top (in the case of

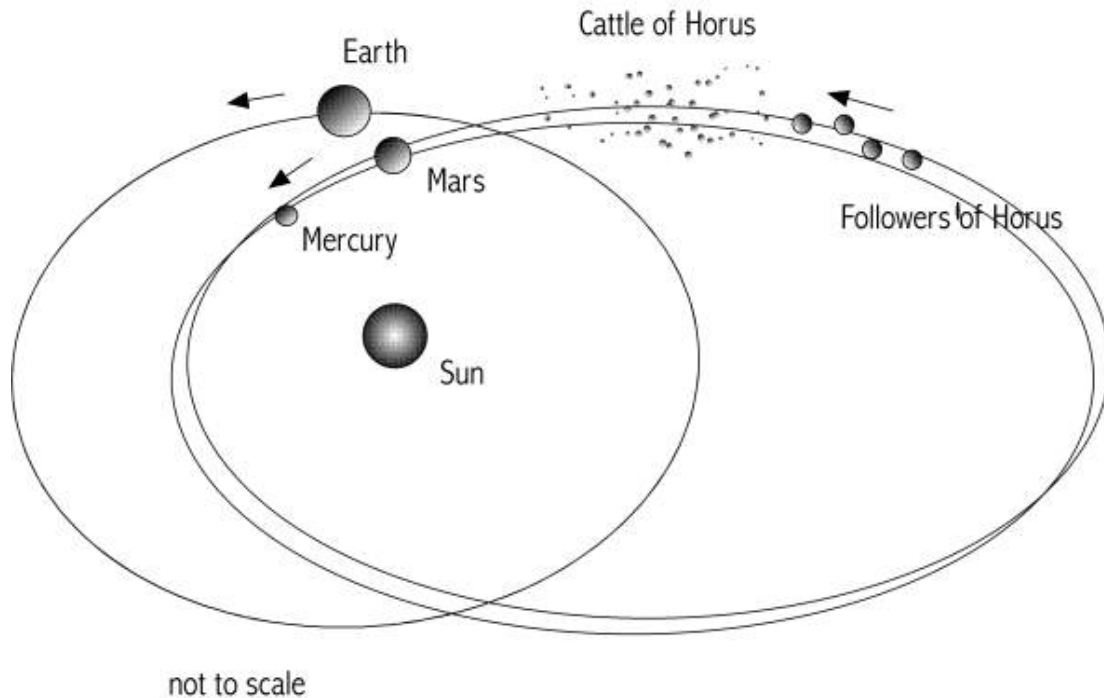
Mesopotamia these are small lions). The same flags are attached to the standards as shown on the Palette of Narmer.

Animal counts are shown at the bottom. The seated figure with his arms up in the air denotes a "million." The "Cattle Count" has drawn archaeologists' remarks to the effect that this must be a complete fiction, based on the actual numbers listed on some predynastic objects, like the macehead described above, showing, for example, 400,000 cattle, 1,422,000 goats, and 120,000 bound captives. 1,822,000 herd animals are depicted. This exceeds what the population of Egypt, estimated at between 500,000 and 800,000, could have managed or supported. Similarly, 122,000 captives would have represented twenty percent of the estimated population of Egypt. The rounded numbers of the count suggest estimates rather than actual counts. But I think we are not dealing with animals and captives here.

... the Followers of Horus

Lastly (on the Palermo Stone) we have the "Followers of Horus." Most modern text books simply avoid mention of the "Followers of Horus" for no one can even imagine what that year-name could mean. What I will suggest is that these entries record celestial displays of close followers of Mars. It is an assembly consisting of the Maruts, the Trojan followers of Mars (identified also in Vedic documents). What I am suggesting thus, is that Mars, in addition to being followed (and maybe preceded) by a huge cloud of debris consisting of millions of rock fragments of asteroids, was followed by a number of larger asteroids.

[\[note 12\]](#)



Horus and his Cattle and the Followers of Horus

[Image: Mars and Earth on intersecting orbits shown with four follower asteroids in the same orbit as Mars. Six still exist today. The smaller debris in the wake of Mars may represent the cattle. Illustration by J. Cook.]

Later descriptions in the 8th century BC suggest that Mars was still accompanied by hundreds or thousands of asteroid-like bodies. We have only limited clues that these existed, and no indication of the number, the sizes, or the exact location with respect to the planet. And, located some distance away along the orbit of Mars, there followed some six larger asteroids, identified in Vedic sources as the Maruts (counted as seven in Vedic sources), together with Mars itself. These six are still following Mars, and have been detected. [\[note 13\]](#)

Gary Gilligan, in *An Ancient World in Chaos* (2008), has demonstrated that, with very few exceptions, the hundreds of battles that Egypt fought over a 3000-year period, always led by the Pharaoh and always won by the Egyptians, never happened on Earth, but were observed to have happened in the skies. He points out the complete lack of archaeological evidence for any battles. For example, at the Battle of Kadesh in circa 1287 BC, probably the most famous battle of antiquity, 20,000 Egyptians engaged 40,000 Hittites. Yet not one bone or war artifact has been found despite the inscriptions by Rameses II telling of tens of

thousands of dead soldiers. Gilligan claims that Kadesh itself also has not been found.

Similarly, notes Gilligan, at Megiddo some 34 battles were fought, including 14 by Thutmose III. "Yet," Gilligan writes, "no corroboratory archaeological evidence exists." The battles were fought entirely above the Earth. Thutmose III is traditionally placed in 1479 BC to 1425 BC. Velikovsky places him in the tenth century BC, after Solomon. [\[note 14\]](#)

"To put this into some kind of context, Megiddo is a location where hundreds of thousands of soldiers engaged in numerous battles over a period of 3,000 years -- thousands of chariots, battle axes, spears, bows and arrows, the carnage, dead soldiers, etc, etc, and yet no archaeological evidence remains to corroborate them as ever taking place -- nothing. We have an abundance of written documentation but -- NO CRIME SCENE! This despite the fact that archaeologists have been digging there for decades."

-- Gary Gilligan [\[http://www.gks.uk.com\]](http://www.gks.uk.com)

Gilligan is using standard chronology, or none at all. Velikovsky places Thutmose III 500 years later, and has Megiddo as the site of a peaceful capitulation of Jerusalem by its king, Rehoboam. Jerusalem is one the mysterious cities named Kadesh, which means "sacred place".

Eva Danelius, in "Did Thutmose III Despoil the Temple in Jerusalem?" in *Chronology & Catastrophism Review* (1977/78), also claims that Megiddo was never sacked, and that the goal of Thutmose III was to reach Jerusalem. Which he did.

The battle of Megiddo was designed as an overwhelming show of force by Thutmose III, who traveled up the coast road to Megiddo where the king of Jerusalem and all the kings of the other principalities of Israel were holed up. This is what Dale F. Murphie claims, writing in "After 200 Years It's Time to Get Serious About Dynasty XVIII and Thutmose III" in *Aeon* (1998).

Danelius also explains why Judah was called "God's land" by the Egyptians, and why Thutmose III took extraordinary religious protective measures in passing through this region. As Danelius relates, the stones which had fallen on Joshua's enemies 500 years before Thutmose III, are in fact still known today and can be identified.

When Mars and the asteroid swarm neared Earth, a parade of objects would move from west to east past Earth (the celestial direction), but seen daily or nightly as moving east to west -- first the Followers of Horus, then the dead prisoners, followed by the cattle, large and small, and finally Horus himself, followed by his sandal-carrier, Mercury. This is the order depicted on the top register of the "Palette of Narmer" of circa 3050 BC, shown below. The cattle are not shown and the Followers of Horus are on the reverse side. If any action by the Gods would suggest a procession to us humans, it would have been this parade. A parade of animals had been recorded before in Egypt, before the first kings, on cosmetic palettes, knife handles, and combs. [\[note 15\]](#)

It seems reasonable to suggest that Mars was not only accompanied by asteroids after 3067 BC, but this was still so in 800 to 700 BC. The suggestion comes from predynastic Egyptian palettes and engraved objects, the record of the Palermo Stone, and from later descriptions of Mars, even though these date to after 800 BC -- 2000 years later. Immanuel Velikovsky, in *Worlds in Collision* (1950), collected many Vedic and Biblical recollections of the companions of Mars in the 8th century BC -- the "Maruts" of India are the "hosts of the Lord" of the Bible.

Horus (Mars) is listed in the genealogy of the Gods as the "second Horus." The first Horus (also Mars, but before 3147 BC) is known as "Horus of the Gods." Mars would have been recognized at close quarters by its pockmarked lower surface and smooth upper half, an upper ocean which lasted into the 8th century BC, and certainly by its red face. The 5000-mile (8000-km) scar came after 800 BC.

The cratered surface of Mars, which extends across the lower half and crosses its equator at an angle (today), may have been the model for the distinctive dress of priests, shamans, and kings in Asia, Egypt, Africa, and Mesoamerica. The wearing of spotted leopard or jaguar skins -- over the shoulder -- is certainly a feature of later history. Although Hercules of Greek mythology wore a lion's skin. The "distinctive dress" of the pharaohs depicted on predynastic ceremonial mace heads may represent an animal skin worn over the shoulder, as does the pharaoh depicted in the Sed Festival sculpture at Djoser's pyramid complex, built in 2650 BC, and thus 100 years after Mars had last come close. At later dates in Egypt, however, only priests wore leopard skins. The African leopard was all but driven to extinction in antiquity, and is still a threatened species today.

What is less suggestive of an imitation of Mars is the "flail" carried by the pharaoh in running the course of the Sed Festival. Archaeologists call the hand-held object a "flail" because that is what it looks like. Why this object needed to be carried while running is unknown. Because the flail appears already in the Narmer Macehead (dated to circa 3050 BC), where it is held by a mummified figure, well before Mars first shows up, it could be suggested that the flail is a heteromac or bramble bush -- the "sweeping devices" identified with the overhead lines of electrons at the time of the southern plasmoids, and last seen a thousand years earlier. [\[note 16\]](#)

If Mars was released when Saturn had already entered the asteroid belt, as I have assumed, Mars probably could have swept innumerable asteroids along into the new orbit around the Sun. Jupiter seems to have done this also, for there are thousands of asteroids in Jupiter's orbit. These asteroids are known as the "Greeks" and the "Trojans." The first "Trojan" asteroid of Mars was discovered in 1994. Six are known today. [\[note 17\]](#)

... Maruts

Cardona, in an essay titled "Indra" (*Aeon* 1982), mentions that the original Indian sources list the Maruts as seven. Add Mars (whose name is derived from Marut) to the six Martian Trojans known today, and we end up with seven also. This is a marked change from Velikovsky, who thought the Maruts were comets following Mars, and others, even Alfred de Grazia, who all but reduces the Maruts to the moons of Mars:

"It is famous that Mars is accompanied by two small moons. With the Vedas in mind, we can call them the Maruts, but the Maruts were many bodies. Jerry Ziegler and Donald Patten, among others, have found numbers of references to and descriptions of the behavior of the late principal Maruts, unmistakably the satellites Demos and Phobos, Rout and Terror, which, although not seen by modern observers until Hall's report of 1887, were well known to the ancients of many countries."

-- Alfred de Grazia, *The Iron Age of Mars* (2009)

It is unlikely that all the companion asteroids of Mars would have relocated to the same 60 degree nodal points of the orbit of Mars during the first 300 years. In fact, from the records of the near passes of Mars some 2000 years later (in the 8th century BC), it seems that at least some of the cattle and companions of

Mars still remained close to the planet at that time. During the predynastic times of Egypt (and perhaps during the first and second dynasty) the count, as mentioned above, ran into numbers over a million for the cattle. The "Followers of Horus" are likely much larger asteroids. They count only to six (Vedic sources), and still exist today.

It is always possible that the "Followers of Horus" are represented by the four standards shown carried in the predynastic Palette of Narmer and the Macehead of Narmer. One later depiction adds one additional standard. (I would suggest that the fifth standard represents Jupiter, identified in Mesoamerica as the green fifth tree of the center.) Comparing the predynastic maceheads to much later fifth dynasty (after 2500 BC) inscriptions, N. B. Millett wrote in 1990:

"From the fragments of a similar scene from the Abu Gurab sun-temple we know that the four standards [together] represent 'the followers of Horus, the gods, the souls [of the city of] Pe [Buto],' that is to say, the ancestral kings of Lower Egypt.

-- N. B. Millett, "The Narmer Macehead and Related Objects" *Journal of the American Research Center in Egypt* (1990). [\[note 18\]](#)

But another predynastic mace head, attributed to a king Scorpion, shows seven standards (with animal figures at the tops) each with a bird hung by the neck.

... Hercules

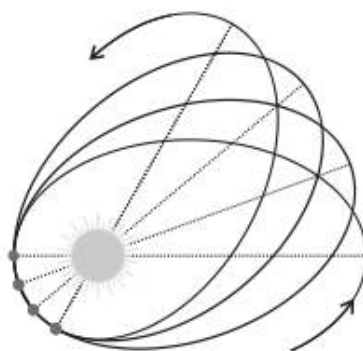
The heroics of Mars are recorded as the ten labors of Hercules by the Greeks, although reduced to narratives only after 600 BC. But in their origins these adventures certainly reflect the ten visits between 3067 and 2700 BC. Hercules is almost always herding cattle, stealing herds of cattle, retrieving stolen cattle or horses, or gathering armies to attack some region of Greece. Similar travel tales exist in India (Indra), and much earlier in Mesopotamia (Eridu and Gilgamesh). The travels of Mars become the literary model for the quest sagas of later ages. The dramatic travels of Hercules were repeated with the nine close contacts by Mars in the 8th and 7th century BC. It is probably these last appearances which form the core of the tales of Hercules dating from late antiquity. [\[note 19\]](#)

Whatever happened in the skies was duplicated on Earth. However, even after the celestial events no longer occurred (by around 2700 BC), the ceremonies

continue on Earth. This makes it difficult to separate the celestial events from the ceremonies instituted by the priesthood and the pharaohs. In the meantime, Egypt might have instituted earthly cattle counts, for these start to appear every other year by the fourth or fifth dynasty. The Sed Ceremony remains celebrated at odd intervals far into the future.

The "Upper Land" becomes equated with the Nile river valley south of the delta (up river), just as the "Lower Land" becomes the land of the Nile delta. This reflects the flow of the river Nile. But another location of the "Upper Land" is revealed in a striking statement for year 2 of the Palermo Stone record for the pharaoh Djoser of the third dynasty (2667 to 2648 BC), which reads, "Passing of the Upper Egypt King by the two Pillars." The King of Upper Egypt (the Upper Land) is Mars on its orbit on the ecliptic, in this instance at a time of year when the ecliptic dipped below the upper edges of the Absu. The pillars which are passed by the King of the Upper Land are the sides of the gates to the otherworld seen at night in the south, the left and right edges of the shadow of Earth cast upon the Absu at the time of the equinox.

Another interpretation of this is to assume that the "pillars" are the east and west plumes. These are frequently depicted on Mesopotamian cylinder seals as the doorposts on which the gates of heaven hinged.



[Image: The relocation of the orbit of Earth or Mars about the Sun due to apsidal precession of the second nodal point (perihelion precession). Illustration after Wikipedia, public domain.]

Certainly by circa 2700 BC, it is over. Mars no longer visits Earth. Likely the normal precession of the orbits of Mars and Earth caused them to diverge from each other so that the inclination of the two orbits was no longer coincident. The precession of an orbit is the slow rotation of the second node of an elliptical orbit around the Sun.

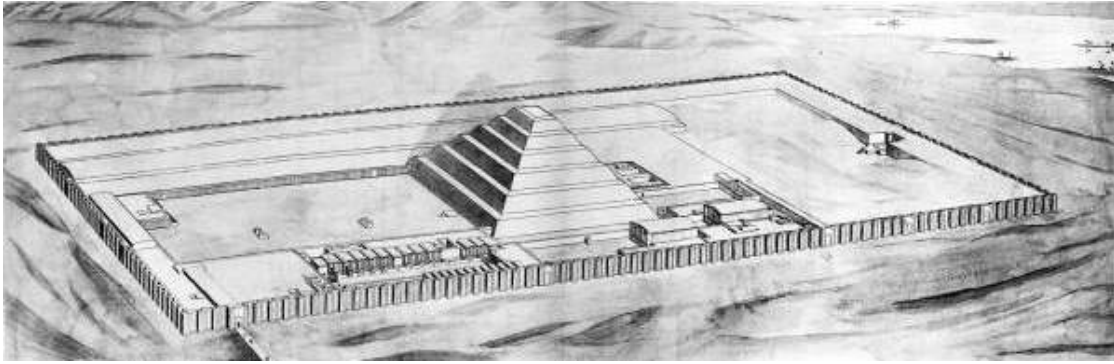
Orbits are ellipses, and have two centerpoints, called nodes (or focusses). One node of an orbit is always located at the Sun. The second node of an elliptical orbit is located away from the Sun, and slowly relocates in a circle around the Sun. That's orbital precession,apsidal precession. Today the precession of the Earth's second node takes an estimated 112,000 years to revolve once around the Sun, so that the orbit today moves only a quarter-minute of a degree per year. With both the Earth and Mars on considerably more elliptical orbits 5000 years ago, precession might have been much greater than today.

The Pyramids of Egypt

After 2770 BC, when Mars no longer comes close to Earth, humans start attempts to induce the return of the God. The graves of the pharaohs change from mastabas to pyramids in the likeness of Horus's mountain. The first step-pyramid is built by Djoser (3rd dynasty, circa 2667 -- 2648 BC) at Saqqara. The pyramid is surrounded by an astoundingly beautiful and complex set of outbuildings and courts. Half of the buildings are fake or present only façades, a good indication of the status of intent -- rather than action -- in the theology of Egypt at that time.

The pyramid of Djoser is totally different from the earlier mastabas. Djoser's pyramid is aligned north-south, facing the center of the travels of Mars/Horus about the North Pole of Earth after 3070 BC, unlike the earlier mastabas which were aligned to the northwest -- the strike point of the plasma stream from Saturn before 3147 BC.

I should also note that this building is not an imitation of the mountain form of Jupiter (which at any rate was much steeper), for Jupiter was at this time in the asteroid belt (for a period of about 390 years, circa 2914 BC to 2527 BC), and the giant outpouring at the bottom of Jupiter had been replaced with a horizontal plasma -- the bottom line of the "shen" symbol. Jupiter thus had shrunk to a much smaller size already 200 years before Mars stopped coming.



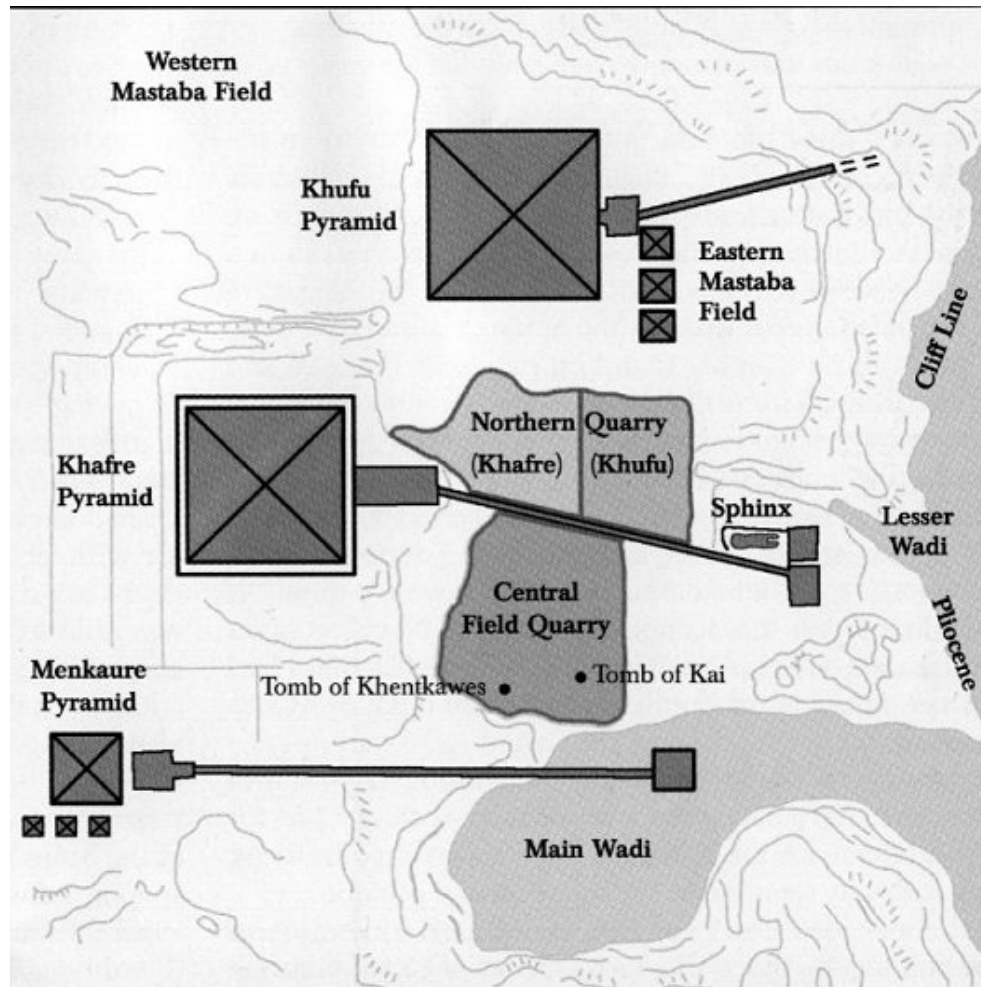
[Image: Pyramid of Djoser, circa 2655 BC. Public domain.]

Two or three additional step-pyramids are constructed before Seneferu (4th dynasty, circa 2613 -- 2589 BC) builds the first true pyramids, one at Meidum and two at Dahshur. The three Seneferu pyramids together exceed the immediately following pyramids of Giza in volume.

Seneferu's direct successors build the three pyramids at the plateau of Giza (between circa 2590 and 2500 BC). This was the largest single construction project ever undertaken in the world, and reflects the extraordinary efforts by the pharaohs to restore previous conditions. The Giza pyramids have fascinated visitors for over 4500 years. The location at the apex of the Nile delta, the surrounding level plateau raised above the countryside with the river sliding past below, and the rectilinear placement of the three pyramids, together are a major design feat. The location and design speak of uncommon power and majesty, reiterated by the sheer size of the structures.

The Giza pyramids are cenotaphs, that is, empty "fake" graves, and it is absolutely amazing to consider the astounding amount of effort which went into graves which were meant to remain empty from the first moment of their design. We need to look for a significance beyond the simple political pressure to have separate graves for the pharaohs in Upper Egypt and Lower Egypt.

[\[note 20\]](#)



[Image: The three pyramids at Giza; constructed between 2590 BC to 2500 BC. After Colin Reader.]

The size of the three Giza pyramids and their relationship to each other have caused no end of speculation. Newton awaited measurements of the base of the main pyramid before publication of his theory of gravity -- on the assumption that the base would be a significant fraction of the Earth's diameter. This was based on a belief in "the wisdom of the ancients," still current in the 17th century AD. A contemporary theory equates the three pyramids with the three stars in the belt of Orion. Aside from the fact that Orion has no relationship to anything in Egypt, they do not correspond in placement. A more reasonable recent suggestion has been that they represent (in order) the planets Earth, Venus, and Mars. This was then "proven" with inscribed circles, sight lines, and various geometrical manipulations. [\[note 21\]](#)

I think that the pyramids most likely represent, in order from north to south, the graves of Ra (or Amun), Osiris, and Horus. That is, the planet Saturn as

originally seen at the North Pole, Jupiter as Osiris the son of Ra seen as the green mantled form which was understood as the mummified God receding into the south skies, and Mars as Horus, the reincarnated Osiris.

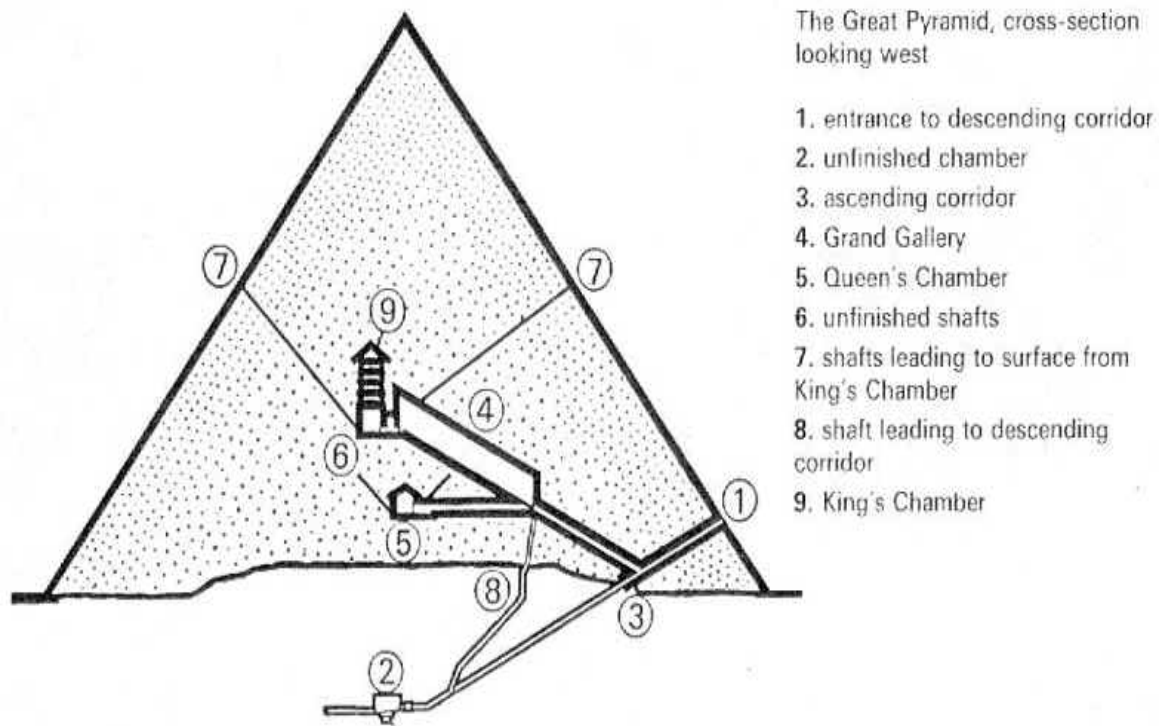
Horus (Mars) had failed to return after about 2750 BC. Dead also was the original deity at the polar location, Saturn. Osiris (Jupiter) had also long been dead. Perhaps it was enough to have these planets appear in the south to be considered dead.

At the time of the construction of the Giza pyramids Jupiter was seen again in the night skies of the south, however. The pharaohs of the fourth dynasty added "Son of Ra" to their long names, for Jupiter had moved out of the asteroid belt after 350 years (circa 2590 BC, at the start of the building efforts) and again had a large lower plasma outpouring.

Isis was not represented with a grave, for the planet Venus clearly still stood in the skies at that time. The first two pyramids were faced in brilliant white limestone. The third pyramid is smaller and has the lower half faced in very roughly cut unpolished red granite -- all three appropriate for Saturn as Ra, Jupiter as Osiris, and the red planet Mars as Horus, even to the point of duplicating the roughly cratered southern hemisphere of Mars. [\[note 22\]](#)

These pyramids are religious concepts about the death of the Gods expressed visually and brought within the provisional responsibility of mankind. Egypt was providing the graves for the dead Gods.

The pyramids are staggered because each had to face north. The second pyramid is smaller than the first, but sits on a rise in the plateau, making it nearly the same height as the first, appropriate for Osiris as the son of Ra. The third pyramid is considerably smaller. This is the new youth, Horus, as the resurrected Osiris. The addition of a gold plated cap to the first pyramid, which archaeologists presumed existed, would likewise be befitting to the earlier fiery condition of Ra after Saturn went nova.

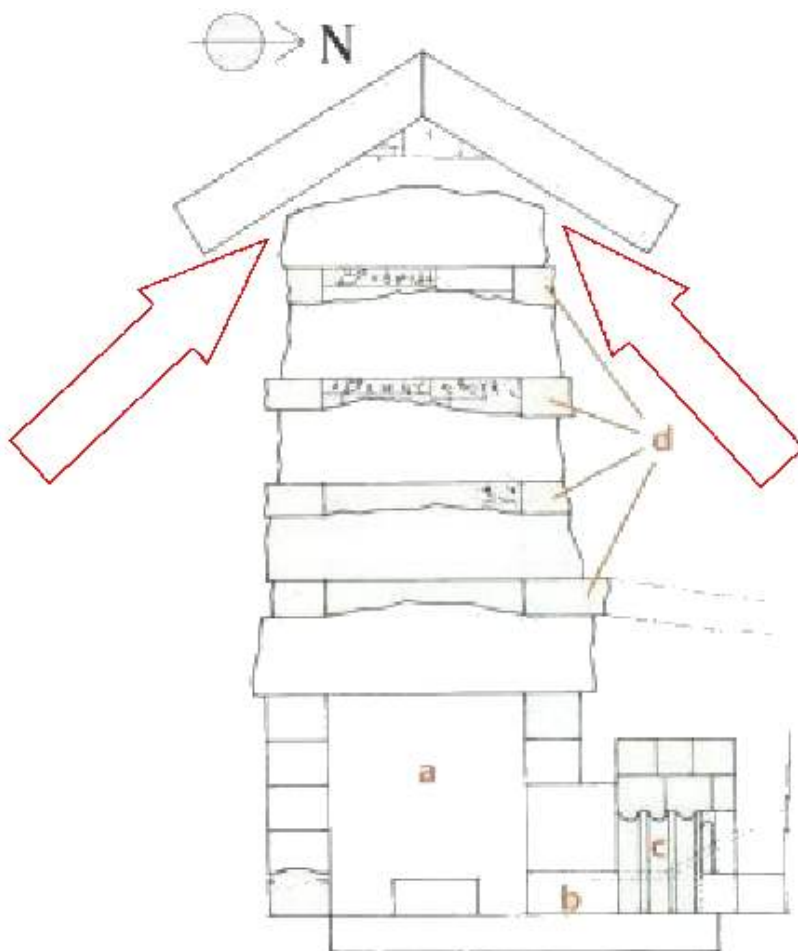


[Image: Section through the pyramid of Khufu (Cheops) at Giza. After I. E. S. Edwards.]

The whole of the elaborate grand passage rising within the Great Pyramid (Khufu's), rising at a slope of 26 degrees, and never duplicated in any other pyramid, represents the plasma stream connection, with the multiple roofs above the "King's Chamber" (at the top level) reproducing Saturn and the upper rings surrounding it. The upper chamber and the sarcophagus are of red granite, of course. The symbolism of the lower "Queen's Chamber" likely was meant to represent Mercury in its earlier location below Saturn.

The multiple roof beams of granite blocks above the upper "King's Chamber" have no structural advantage, despite the fact that this "reason" has been repeatedly recopied from one source to another. The weight supposedly resting on the upper "King's Chamber" (200 feet of stone) is much less than the weight bearing on the much lower "Queen's Chamber" (300 feet of stone) which uses only a single set of peaked slabs for its roof (thus shaped like a house roof). The use of peaked or corbelled roofs had been in use in the pyramid at Meidum, and in the two pyramids by Seneferu at Dashur (each supporting 300 to 400 feet of stone above the roof).

Structurally, peaked slabs or a corbelled roof would have made much more sense for the King's chamber. In fact, above the five flat blocks of the "King's Chamber" is a set of peaked slabs, structurally unconnected to the flat slabs below them. [\[note 23\]](#)



[Image: Unloaded roof beam slabs above Khufu's burial chamber. Anthony Sakovich writes "the arrows point to the spaces: This area of 'non-contact' is precisely what we need to show that the force is being totally and completely transferred away from the roof of the King's burial chamber ... and also right over the top of the Grand Gallery." After Anthony Sakovich.]

Thus all the construction at the Giza plateau comes together in the final product, based on an initial grand design, and not as three pharaohs competing for national resources and building progressively smaller pyramids as the original impetus faded over the course of 80 years. [\[note 24\]](#)

Colin Reader has suggested that the construction of the three Giza pyramids show a design which encompasses all three pyramids from the very start.

"Under the conventional chronological scheme 'Khafre's causeway' [leading to the second pyramid] did not exist at the time of Khufu's [Cheops] quarrying [for the first pyramid]. If this had been the case, why was the extent of the quarrying limited by a feature (the causeway) which was only conceived in Khafre's reign?"

"The conventional sequence of development requires us to accept that Khufu's workmen went to the trouble of opening up a second quarry, leaving an intact limestone ridge -- which we now know as Khafre's causeway -- between the two quarries. Why did they not simply extend the northern quarry southwards by removing the linear body of limestone which, at the time, served no apparent purpose?"

"The positioning of the two quarries clearly suggests that, like the excavation of the Sphinx and the construction of the Sphinx Temple, the alignment of 'Khafre's causeway' was established some time before Khufu's work at Giza. Under this revised sequence of development, interpretation of the spatial relationship between the causeway and Khufu's quarries becomes quite straightforward, with the existing causeway limiting the extent of the later quarrying work."

-- Colin Reader, "Giza Before the Fourth Dynasty" *JACF* (2002)

This may be the only hint at a complete plan, outside of the final results. The Giza pyramids are the only grouping of graves in Egypt with a unitary design. Reader also suggests that the Sphinx may date from the first or second dynasty, that is, it preexisted the building of Khafre's causeway and his mortuary temple. In fact, the walls of the mortuary temple of Khafre are wedged into the enclosing wall of the Sphinx temple. There is additional evidence also.

He suggests dating the Sphinx construction to the first or second dynasty. I would suggest a date after the start of the second dynasty, because this was the time directly after Jupiter, as the Midnight Sun, disappeared from view. In about 2859 BC Jupiter entered the main region of the asteroid belt (at about 2 AU) and its size and coma were reduced significantly. The first dynasty ended in 2890 BC.

This suggests that it was not a civil crisis or political developments which caused the change of dynasties, but a religious crisis. This will be seen over and over again, except for the much later period of the New Kingdom, and even for this later period we have established religious crises. [\[note 25\]](#)

The only reason to have the Sphinx facing directly east is in relation to the Sun. This would make sense if Giza represented the northernmost travel of the Sun -- that is, its solstitial latitude. Giza had already been a cemetery during the first and second dynasty, and perhaps for the same reasons.

Thus it is possible to suggest that the Sphinx was constructed to face the rising Sun at solstice, when the current real Sun replaced Jupiter after 2860 BC. That calls for a summer solstice sunrise at 30 degrees north latitude, the location of the Giza pyramids and the Sphinx. But that would happen only if the inclination of the Earth's axis was 25 or 26 degrees. Assuming the disappearance of Jupiter as the Midnight Sun near the end of the first dynasty (and its shrinkage), it could be suggested that the Sphinx was constructed after the end of the first dynasty as a beacon to watch for his return. Since this is the maximum northerly displacement of the ecliptic from the equator, it is also the maximum northerly location of the rising of any of the planets, and especially a slow moving planet.

If the inclination was 25 or 26 degrees, so that the Sun would rise directly east at Giza at the solstice, then the equinoxial path, where the Sun traveled from east to west on a path directly overhead, would have been experienced at 25 or 26 degrees north latitude, at Nekhen (Hierakonpolis) (actually at 25 degrees north latitude). Nekhen was the primary "religious and political capital of Upper Egypt at the end of the Predynastic period (c. 3200-3100 BC) and probably also during the Early Dynastic Period," reads Wikipedia.

The significance of the giant Giza pyramids is now easy to understand. The Gods of old now lie in state in Egypt at the apex of the Nile delta, the very entrance to Upper Egypt -- as determined by the travels of the Sun. Upper Egypt had become the home of the dead Gods. This should not be seen as a symbolic representation. These structures were intended as the actual graves for the actual Gods. Nothing less could be so important. [\[note 26\]](#)

The pharaohs after Khufu added "Re" to their names. At that time Re, as Jupiter, was blazing again as the Midnight Sun after a 300-year absence. Jupiter had exited from the asteroid belt in circa 2527 BC and again stood in the night skies with a coma three times the size of the Moon and a gigantic plasma mountain. It had happened shortly before Khufu took the throne. All subsequent pharaohs use

"Re" as part of their name also. This may have been understood as another religious crisis for Egypt. But as likely it would look like Re was giving his blessing to the construction efforts.

South of Giza are the three earlier attempts at giant pyramids at Meidum and Dahshur (60 and 30 miles, 100 and 50 km, south of Giza). These were started in 2600 BC by Seneferu -- thus at about the time Jupiter exited from the asteroid belt and again assumed its gigantic mountain form. Seneferu's pyramids in aggregate exceed the Giza pyramids in size. It is interesting that here we also have three pyramids -- all constructed by a single pharaoh, the father of Khufu. These are the first true pyramids (as opposed to two earlier step-pyramids) and all three look like experiments in building techniques culminating in a final design at Giza. As at Giza, the Seneferu pyramids also represent two large and one smaller pyramid. The supporting ground surface at Meidum and the construction methods and materials caused major faults and the partial collapse of one. They certainly do not match the majesty of the group at Giza. [\[note 27\]](#)

The start of pyramids after 2600 BC in Egypt is duplicated elsewhere in the world -- in China (undated), in the Andes on the Peruvian coast (2630 BC), in Greece, and in Mesopotamia as high ziggurats (uncertain, 2600 BC or later).



[Silbury hill rises out of the landscape south and in view of Avebury henge. The hill has no content except a small dedicatory offering at the center at the bottom. After sacredsites.com.]

Silbury Hill near Avebury in England is interesting. It is the largest man-made hill of antiquity -- composed entirely of chalk with a sod covering, and without monuments or burials. It is 120 feet (40 meters) high, 520 feet (175 meter) wide at the base and surrounded with a ditch 20 feet (7 meters) deep. It looks like a somewhat later effort at inducing the return of Mars. Silbury hill was started in 2750 BC (the initial mound), with the third phase of construction completed in 2500 BC. (I have another starting date of 2660 BC.)

Expectations of the return of the Gods last for thousands of years. The much later 300-foot-high temple of Marduk at Babylon (built prior to 1800 BC, expanded in circa 700 BC, rebuilt in 680 BC) was called "Etemenanki" which transliterates as "The Temple [House] of the Receiving Platform between Heaven and Earth" (Jaynes). The living quarters of the God had been replaced with a landing pad.

A constant in all the construction (especially later in Mesoamerica) is the need to periodically enlarge existing monuments or build new ones, like Horus had rebuilt his mountain 10 times, and to be always ready for the next coming of the God, who never again appeared after 2700 BC -- at least not for some 1100 years.

Barrows after 3100 BC

After about 3000 BC the barrows and henges of Western Europe seem to take on a new meaning among the coastal tribes of Brittany, England, and Ireland. The barrows and henges start proliferating, with concentrations in Brittany and England completely out of proportion to any need for interments or meeting places. As an extreme example, there are single village locations in Brittany with hundreds of barrows.

As I have pointed out before, it may be an error to call these constructions "grave barrows." None of the early examples seem to have had anything to do with the dead. Only after 3000 BC are some converted to ossuaries. Even most of the late barrows are seldom used for interments.

The barrows, especially, are associated with a people who are thought to be newcomers to the region, as is demonstrated by new forms of pottery and tools which show up. The coastal lands had been scoured clear of life with the flood of 3147 BC, but repopulated within the next hundred years. The extant barrows, henges, and causeways must have been an amazing sight. These gigantic

structures, some of which had already been in place for thousands of years, would certainly have represented an ancient order of power to the new tribes who had recently migrated into the region. I suspect that new constructions soon became the expression of status and power among individual clans.

Certainly the repeated overflights by Mars after 3000 BC must have been reason enough to reactivate the monuments which had stood idle for over a hundred years and to build new ones. And perhaps those earlier regular visits of Mars were also seen as conferring authority on the local clan chiefs, similar to what occurred in Mesopotamia and Egypt during this period.

What we are certainly seeing after 3000 BC is the ability of leaders and chiefs to muster greater resources to accomplish the additional new constructions. This might be the result of an increase in population density due to a more settled way of life based on farming rather than hunting.

Seen as part of the aggrandizement of individual clans and their leaders, the profusion of these later barrows is more easily explained, even if there were also overt religious purposes. This would explain the later fake burrows which have a doorway but no interior. There was a shifting in alignments also, from a west-north-west direction (the earlier orientations to the strike point of the plasma) to a north-south direction (the center of the movements of Mars on his visits, and the center of the rotating sky).

I would not suggest such mundane motives for these constructions were it not for the documented experience at Easter Island. Easter Islanders did not stop carving the 800 giant statues of their ancestors until they had cut down the last tree needed to move the statues. Nearly 400 were never completed or placed as a result. In Easter Island the "form" remained fixed, like the form of the barrows and henges. [\[note 28\]](#)

There are many other examples of this type of compulsive and repetitive construction. The Yucatan Maya stelae come to mind, as do the temple pyramids which start to appear in Mesoamerican villages with great frequency. Other examples are the mounds of the Ohio Hopewell culture and the gothic cathedral craze of 12th-century Western Europe.

In some of these examples, the evidence for religious motivation is more obvious. Henry Adams attributes the construction of the gothic cathedrals to a desperate longing for hope in the face of a repressive religious atmosphere. Religious motives, like the guarantee of a leader's intercession with the Gods,

were very likely the reason behind any of these obsessive constructions of the past which became region-wide cult practices. If religiously based, the design for the construction would have been mandated by sacred forms, which would have remained inviolate even if their original purposes were forgotten. The empty barrows and the passage graves, where the side rooms are no longer in pairs, both seem to be examples where the form has been retained after the original vision had been lost. [\[note 29\]](#)

Religious motivation most certainly underlies the building of barrows also. It is possible that the Celts of this time period considered the barrows as a means of transport to the land -- paradise -- which had stood in the sky overhead only a few hundred years earlier, or as a way of warding off the capricious Gods. These late barrows were constructed during the 300-year period when Mars (Horus of the Egyptians) regularly overflowed the Earth. But most likely, perhaps during this period, but certainly at somewhat later periods, it was Mercury which shook the northern hemisphere at this latitude with earthquakes, landed electric arcs, and whipped the coastal lands with hurricanes and high tides. [\[note 30\]](#)

Henges after 3000 BC

New henges were built after 3000 BC also, up to maybe as late as 2000 BC. Many of the 100 henges of England are wood henges, all built after 3000 BC, involving hundreds of tree trunks, often replaced by standing stones at a later date. The circular form is retained and often expanded to many concentric circles.

I should highlight the giant Avebury henge, one of the largest in the world, which was started soon after 3000 BC (other dating suggests 2600 BC), and is located directly north of Silbury hill. Avebury henge clearly represented Saturn, complete with a causeway extending southeast (with a number of bends) and ending in a much smaller henge, known today as the "Sanctuary." The Sanctuary is reminiscent of the Egyptian valley temples (the mortuary) located at the southeast end of a pyramid's causeway. [\[note 31\]](#)

If the purpose of the original henges was to imitate, commemorate, or ward off the plasma column seen above the Earth, then, in the absence of the plasma stream after 3100 BC, a new purpose has to be assumed for their continued construction. It would not be unrealistic to assume a religious purpose. These new constructions, in effect, are temples, although not in the manner of the Eastern Mediterranean, where temples are understood as a "house" of the God.



[Image: Stonehenge, looking southwest. After sciencenews.org.]

Stonehenge might serve as an example of how the basic form is retained even if many aspects of the earlier design are changed or neglected. Stonehenge is the most studied henge of antiquity. It is also anomalous in being unlike the earlier forms of henges and in that no other henge had as much time and effort dedicated to it -- 1500 years of building and remodeling. [\[note 32\]](#)

In the final design, Stonehenge is aligned (it is thought) to the midsummer sunrise -- the current summer solstice, although it is off by 3 degrees. And it did not align with the solstice of 4000 years ago either. I also seriously doubt if Stonehenge was ever intended as a celestial observatory for determining aspects of the calendar, especially for agricultural use, as others have claimed. That is just a stupid notion. Farmers know when the soil is ready for planting and don't use calendars. They also do not need to be notified of eclipses and, even less, to know the location of stars. Neither of these have anything to do with plantings or harvests. The only thing that makes sense is for the site to have been used in religious festivals.

But the obsession of the British with assigning astronomical features to Stonehenge, as also to many other megalithic monuments, is the direct result of the astounding advances made in astronomy in the late 1700s and early 1800s, especially in England, and specifically by William Herschel and Caroline Herschel. If this had been another era, other uses would have been ascribed to the megalithic monuments.

The earliest structure built at Stonehenge, dating from before 2900 BC (some claim 3100 BC), was a circle of 56 postholes (for wooden posts) with a surrounding ditch and embankment. The original 56 "postholes" are three feet (a meter) in diameter. These are not posts, these are holes for the trunks of full sized mature trees. It was thought at one time that these "postholes" might have contained the blue stones, rather than wooden posts. This would make much more sense in terms of initiating the construction, especially if this was done after 2900 BC.



[Image: Stonehenge. After sciencenews.org.]

The embankment was built inside the ditch. Every previous henge has the bank located outside the ditch. This already suggests a disconnection of the first builders from earlier forms and purposes, and suggests a late start. At this time there was also no causeway. The 56 posts were removed and the holes were backfilled with chalk (which is what the subsurface at Stonehenge consists of) in 2400 BC, when the stone construction started. Eighty "blue stone" blocks were transported from 250 miles (400 km) away, each weighing up to 4 tons. The blocks are not all from the same source.

The construction was then delayed 200 years (after 2350 BC), and taken up again (involving additional remodeling) about 2100 BC, when most of the blue stone blocks were removed and replaced by much larger local sandstone blocks (weighing up to 50 tons). There was additional remodeling in about 1600 BC.

The bluestones were apparently moved to a woodhenge (called Bluehenge), the terminal of the road leading out of Stonehenge, and located on the river Avon. After 1500 BC all construction activity had stopped at Stonehenge.

Stonehenge is the only henge using capped stones. This is the most impressive feature of the site (plus the size of the stones). The ring of capped stones was constructed with the later larger stones. These large stones were dressed, which has suggested a Mediterranean influence to some, but stones used for other projects in the same region were roughly dressed or carved as much as 2000 years earlier -- long before the first use of dressed stone construction in the Eastern Mediterranean region. Stonehenge had a causeway added during one of the late reworkings of the site when 19 of the blue stones were also returned or repositioned.

Stonehenge kept the form alive for thousands of years, but the ideas were fractured. It is too small of a circle compared to earlier henges. The bank was built on the wrong side of the ditch. The ditch was never seriously excavated; it is shallow, and debris, left behind in the ditch, marks it as not being considered a serious part of the structure. The causeway was added late and, while the causeways of all earlier henges are on the southeast side of the circles, the causeway of Stonehenge leads off from the northeast opening in the circle. Appropriately, it includes a bend (actually, two bends) in the path. The idea is there, but the assembly instructions are a little muddled. The causeway actually runs east for a much longer distance, then turns southeast to meet the Avon river. The effect is to suggest a processional, rather than a design to point to the midsummer sunrise. At the end of the causeway (at the river Avon) was a smaller henge ("Bluehenge") where the bluestones were at one time located.

In the end, after 2000 years of changes, Stonehenge might have functioned as a monument to the Sun -- but, over its long period of use, the dedication changes from the creator Sun, Saturn, to the Midnight Sun, Jupiter, and eventually to our current Sun, but not until after 685 BC. More on those topics in a later chapter. Since more and more interments are being found nearby, it is currently suggested that Stonehenge was simply a temple dedicated to the dead. That is the first sound idea in 300 years of archaeological considerations and speculations.

Endnotes

Note 1 --

The same intense agricultural practice appears in China, the Andes, Mesoamerica, Southeast Asia, and West Africa -- all at about the same time. It might be simplistic to note, but it was likely that in all of these cases it was the farmers who first recovered from the flood disaster of 3147 BC. Farming became the core for any further development of civilization and population expansion. About the sudden rise of these farming communities, William Mullen in 1994 noted:

"What these civilizations are all simultaneously emerging from, will ... be the largest question before historians of early mankind."

-- William Mullen "Cenocatastrophysm" *Kronia Symposium* (1994)

There are problems with the statement "the graves of kings." Egyptian graves are identified by labels on grave goods, and it is assumed that the names on the labels correspond to kings with the same names (almost not a single body and very few goods have survived grave robbery in antiquity). Mesopotamian "royal" graves, as, for example, those excavated by Sir Leonard Woolley at Ur in 1928-29, have no identification with known names from the Sumerian *King List*. H. W. E. Saggs, in *Babylonians* (2000), writes:

"The richness of the contents of the tombs led Woolley to conclude that they were royal. This assumption received a degree of support from names inscribed on some of the objects, a few of which can be linked to kings of Ur of the Early Dynastic period [a broad range of 2900 - 2371 BC]. No burial, however, is directly identified with a royal name, and in one case the name of a known king occurs in the burial chamber of a female corpse. It is therefore possible that the royal names did not identify the persons buried but were there because royal persons had made dedications at some ritual vital to Ur."

Gunner Heinsohn, at the 2009 Conference on Quatavolution (Kandersteg, Switzerland), presented a paper on "The Scythian Kurgans and the 'Royal Tombs of Ur'," which convincingly identifies the "Royal Tombs" as kurgans of the 8th and 7th century BC.

So where are the kings of Ur buried? I would assume that there existed leaders and priests of Ur, but that the "kings" of the *King List* were celestial. This probably holds for Egypt also.

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Note 2 --

To have Horus (Mars) first appear in circa 3067 BC, that is, to take the Egyptian *Contending of Horus and Seth* at face value, resolves a number of discrepancies in the list of the Kings of Kish, and matches the better dated archaeological records for the first dynasty of Egypt. See Appendix A, "Chronology Notes."

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Note 3 --

The Egyptians recognized that Mars had been seen before, and distinguish this incarnation from the previous appearances of Mars, before 3147 BC, by calling the previous Mars "Horus of the gods" or "this first Horus." The Maya *Chilam Balam* makes exactly the same distinction.

I have to point out that Jupiter (Osiris) with his erect penis was probably remembered as if it happened yesterday by a people who could not place events in perspective in the past, except as rather meaningless sequences.

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Note 4 --

When pyramids start to be built, they are uniformly squat structures -- throughout the world. If these had been meant to represent the "mountain" seen underneath Jupiter, they would have been very steep. Jupiter dropped its steep mountain shape in about 2860, some 100 years before Mars no longer appeared near Earth. In fact, when Jupiter exits the asteroid belt in about 2550 BC and assumes a "mountain" shape again, steep pyramidal structures start to be built in Egypt. This happened during the initial years of the 5th Egyptian dynasty.

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Note 5 --

The mastabas and first few pyramids of Egypt continue to face northwest until shortly before the construction at Giza. With the pyramids of Seneferu and Giza (constructed after Mars no longer visited Earth), and all the following pyramids constructed over the next thousand years, every structure is aligned with the geographic north. The exception was a period late during the 5th dynasty, when Egypt experienced another religious crisis, when a few pyramids were built with their long axis aligned northeast to southwest, perhaps reflecting the supposed

location of the Underworld -- the location to which the door on the Duat would move every day, or the location of the older southern plasmoids.

Amazingly, the rectangular plan, the rise at about 60 degrees, the alignment with the north-south Earth axis, and the dates of the start of construction, are almost universally identical throughout the world. There are very few exceptions.

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Note 6 --

David Talbott had difficulty explaining the iconography of a mountain, for he assumed the moving mountain to be part of the original display caused by Saturn during the "Era of the Gods." But it is not. Separated from the image in the sky before 3147 BC, and assigned to the 300-year period of the visits by Horus after 3067 BC, it is easily explained.

The cone of plasma extending to Mars could be seen with ease from below the equator and, in effect, become some of the first definitive celestial displays for people living in these regions (besides the view of the collapse of the Saturnian system in 3147 BC). Additionally, there might have been south pole plasma cones, since the orbit of Mars was, as today, tilted with respect to the ecliptic.

This can be verified from the earliest iconography of South America. One instance is the image of the "Staff God" which appears early in Peru. It consists of a globe-like face (or body) which carries a staff in each hand, held vertically. The two staffs are likely the edges of the conical plasma stream to Mars, where it appeared most dense. The Staff God was originally female. The image of this apparition as a God will be reinforced with the later appearances of Mars in the 8th and 7th century BC. Although most of the images of the Staff God are dated to 500 BC, a version has been found on a gourd dated to circa 2200 BC, at Norte Chico in Peru.

The Staff God is also known as the Smiling God, as opposed to more ferocious looking deities, with a round face, short body, and snakes for its hair, belt, skirt, and anklets. But in this form it more likely represents the "happy face" seen in the southern ball plasmoid after 10,900 BC. South of the obscuring equatorial rings, people would have had an unobstructed view of this. In this case the two staffs, which vary from condor-headed spear throwers (Tiwanaku) to shorter objects like beakers, may be an abbreviated version of the overhead lines of electrons, just as the single face is doing duty for three ball plasmoids. And he is

also known as the Thunder God (probably meaning lightning) like the names of the southern gods in the *Popol Vuh*.

Egyptian images also show the pharaoh with two staffs, but these are today thought to represent the two kingdoms: the shepherd's crook of Upper Egypt, the grain flail of the delta. I am more inclined to have the crook stand for "time," as it also does duty as the year glyph, representing the plasma plume rising from one or both poles. The pharaoh was expected to live an afterlife of millions of years. He owned time.

The flail, which appears early in depictions of Sed festivals, is likely related to the brooms and sweepers noted by other people as moving along the overhead electron beams after 10,900 BC.

The identities of the Gods shift over time, and especially during the confusion of the end of the "Era of the Gods" in 3147 BC. Before 3147 BC, to the Egyptians, Saturn was Ra ("the Sun"). After 3147 BC, Saturn might first have been identified as Osiris, and Jupiter at first as Seth, and later as Osiris, to eventually be known as Ra or Re ("the Sun").

Late in the "Era of the Gods" Venus was possibly already identified as Isis. But after 3147 BC Lower Egypt calls her Neith, which is actually the well-established southern plasmoid of an earlier time, and only later as Isis. Hathor seems to be a southern version of Isis, but with differing qualities. And then there is Nephtys, who might be the sister of Isis, or be Isis herself.

Mars returns as Horus. "Horus" is the title of any leading God also. After circa 2600 BC Jupiter will become the main God, as the Midnight Sun, and called Re ("the Sun"). His worship may have been instituted in Heliopolis (the city of On) soon after 3100 BC.

The first extensive "pyramid texts" date from 2345 BC. There are earlier snippets of casket markings. The main concern of the pyramid texts is to establish the worship of Osiris.

The pharaohs which we only know by Horus names extend only to about 2680 BC, through the First and Second Dynasty.

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Note 7 --

The frequency is based on the synodic period of the orbits of Earth and Mars, which will be developed later in this chapter.

It can be assumed that the apsidal precession of the orbits of the inner planets was much greater at a time where minor gravitational effects had not yet aligned the orbits into a resonant pattern which slowed the apsidal precessional rates to their current periods -- about 112,000 years for Earth, 43,000 years for Mars. See Appendix B, "Celestial Mechanics."

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Note 8 --

Donald W. Patten and Samuel R. Windsor, in *The Mars-Earth Wars* (1996), have suggested a 720-day orbital period for Mars (at the time when the Earth's year was 360 days). I have verified the 720-day orbital period of Mars from some very arcane information among Maya calendar measures. See the chapter "The Maya Calendar." But additionally, the use of a 720-day orbital period has worked correctly when applied to different situations over a 3000 year time span. It can be assumed that the period of Mars after 3100 BC remained the same until 747 BC, and perhaps even later.

A 720-day orbital period for Mars places Mars and Earth (for an Earth orbital period of 240 days) in a 3:1 relationship. The synodical period of Mars would be (using a 240-day year): $(720 * 240) / (720 - 240) = 360$ days. Mars would show up near Earth every $720 / (720 - 240) = 1.5$ years.

Patten details how he arrived at the 720-day period for Mars with the help of Ronald Hatch (with the aerospace division of Boeing, and in 1990 an orbital analyst with Magnavox), in "The 108-year Cyclicity of the Ancient Catastrophes," in *Aeon* (1990).

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Note 9 --

This assumes an orbit for Mars with perihelion close to the Sun, and a crossing of Earth's orbit at somewhat of an obtuse angle. If that was the case, then the apparent rotation of Mars around the pole would only be seen for a day or so, since the orbital speed of Mars would increase after crossing Earth's orbit, and chances are that the planet would be lost from sight as the Earth fell behind in its orbital travel.

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Note 10 --

The Sed festival may have celebrated an investiture of the pharaoh in the manner of the approach of Mars (Horus) with Earth, or it could have reflected a vastly more ancient tradition. In another chapter I have proposed that the Sed festival may date to the era of the southern ball plasmoid. Although there are Egyptian references to the effect that the festival was held at 30-year intervals (which would seem to relate to the return visits of Mars) nothing indicates that this was strictly observed.

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Note 11 --

The Sumerian *King List* for the Kings of Kish seems to record both the travel of Mars and the sightings of Mercury, separated by 10 to 15 years. The period from one visit by Mars to the next varies between 35 and 25 years. See Appendix A, "Chronology," for details.

The indeterminate reigns of the pharaohs of the First and Second Dynasties of Egypt, which include very long reigns and very short reigns, and includes pharaohs only known by a very few inscriptions of serekhs (name tags), may reflect a similar process of naming chief priests or leaders after appearances of these two planets. The two dynasties extend over the same time span as the kings of Kish, and include some 17 to 20 pharaohs, similar to the number of kings in Kish.

It is clear from later records that Mercury becomes prominent in the skies at some interval measured in a thousand years. This could be suggested from the fact that "Mercury" becomes a popular personal name at various times. This last happened in the 8th and 7th century BC. Because there is an interaction of Mercury with Earth in 686 BC, I believe that until then Mercury remained on an orbit reaching far past the Earth's orbit to the edge of the asteroid belt, just like Mars.

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Note 12 --

Although I have already proposed that the asteroids in the company of Mars could have been extracted from the edge of the asteroid belt, it remains mostly unexplained how this was accomplished. The cloud of debris could have preexisted, but it would be highly improbable that Mars would have gone into

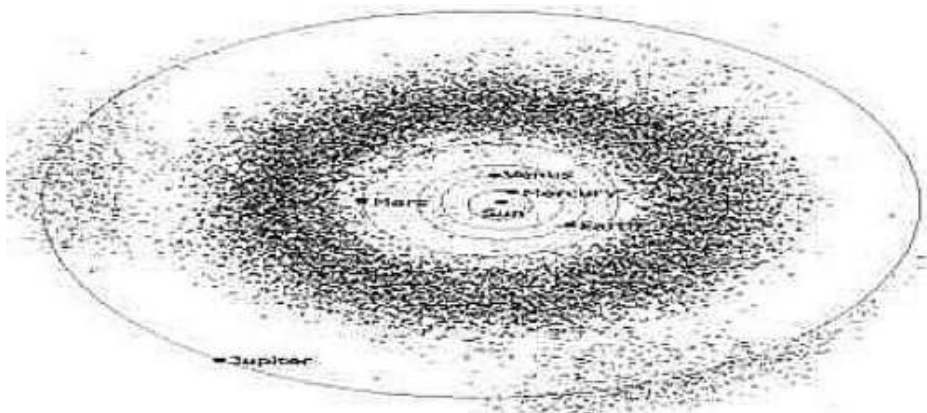
orbit at the center (or even near) such a cloud of rock fragments. Only Tom Van Flandern's suggestion of a gravitational sphere of influence for planets makes sense here.

Except for Followers of Horus (Mars), of which six have been found to date, the "cattle" seem to have disappeared, or just cannot be seen today. Patten and Windsor in *The Mars-Earth Wars* (1996) also suggest that the orbit of Mars would have to extend into the asteroid belt, and thus the Followers of Horus were picked up as satellites.

To account for why Mars would have been expelled away from Saturn at the asteroid belt, it can easily be suggested that, on entering the asteroid belt, Saturn would have significantly reduced its coma, as we will see Jupiter clearly do also at a later date. That would have abandoned Mars and Mercury to the gravitational forces of the Sun, so that they would immediately have started on an orbit with the Sun as one of its centers (focus).

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Note 13 --



[Image: Asteroids in the orbit of Jupiter. Illustration by J. Cook.]

Asteroids in the orbit of Jupiter, shown at an angle to the planetary orbits. Since these are rendered as dots, the asteroids look like they make up a considerable mass. This is not so, since the total mass of all the asteroids is less than three percent of the mass of our Moon. The clusters of asteroids preceding and following Jupiter (called the "Greeks" and "Trojans") are clearly seen to occupy a very wide section of interplanetary space. The same could be suggested for an asteroid cluster associated with Mars. The asteroid belt occupies a doughnut-shaped space in the Solar System, from about 2 AU to 3.5 AU.

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Note 14 --

Not that there were not some actual battles or, more likely, skirmishes, especially after about 750 BC, which the Egyptians consistently lost -- to the Assyrians, the Persians, the Greeks.

"The visual depiction of Egypt's enemies and their role became so prevalent that it is difficult to distinguish in the archaeological and textual sources between purely ritualistic and rhetorical references to foreigners and genuine historical records. Repeatedly, we find examples of battles, and king's smiting enemies that in fact, did not take place, but were mere copies of earlier scenes." <http://www.touregypt.net/featurestories/enemies.htm>

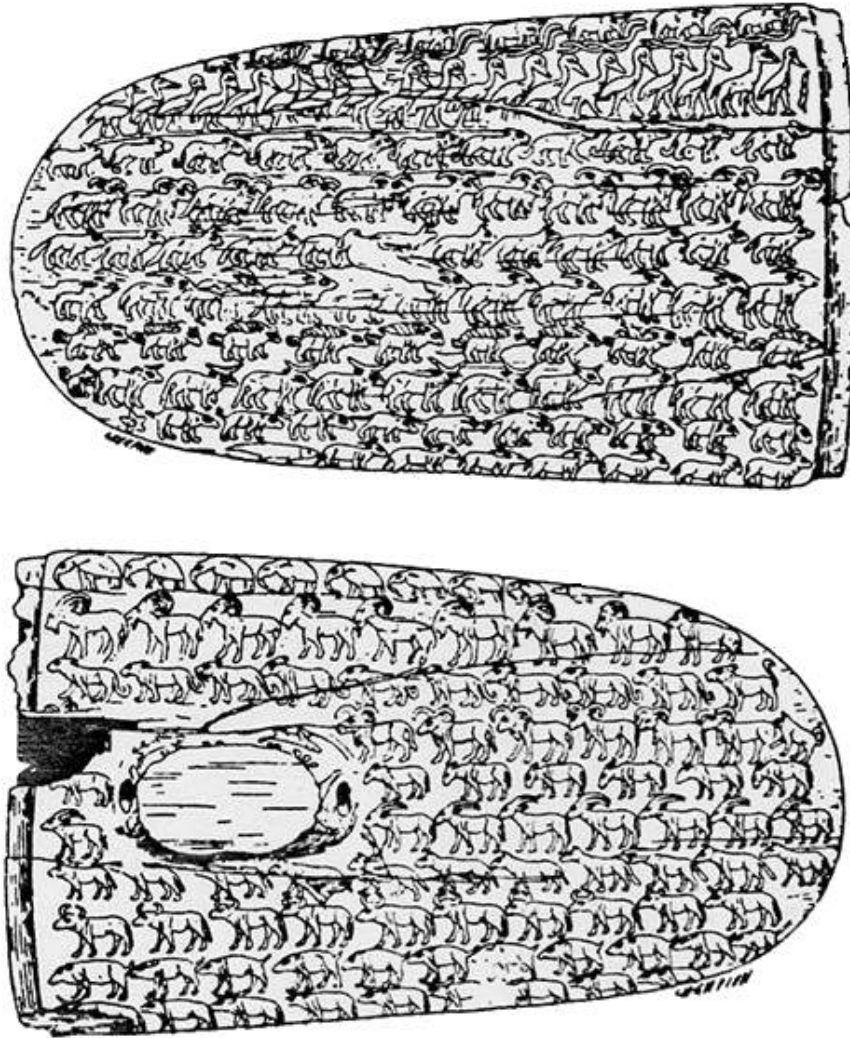
In Mesopotamia one of the fictional invaders could be the "Gutium hordes" which overran the Akkadian empire, although we have no clear dates or locations for the Gutium hordes, nor do we know where they came from, or what language they spoke.

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Note 15 --

An earlier cosmetic palette, the "Two Dog Palette," shows a wild scattering of floating animals -- deer, antelope, cattle, giraffe, lion, a long-nosed jackal with human arms and legs, and a four-legged flying griffin, plus two large dogs. Only the dogs are matched left and right.

Another early palette, the partial "Vultures Palette," shows bound prisoners, birds, and dead men floating toward the right. A lion gnaws at a fallen prisoner while one human steps on the neck of another. Interestingly, two of the four standards which are being carried before the pharaoh on the Palette of Narmer, and were thought to represent four of the nomes of lower Egypt, are here shown on a fragment, not carried, but with arms extending from the poles to hold the bound arms of two prisoners. Prisoners are identified by the fact that their elbows are tied together behind their backs.



[Image: predynastic ivory knife handle. The order of species depicted and their deportment, as with elephants standing on snakes (top of first knife handle), is almost invariant during this period, and thus largely formalized. After Francesco Raffaele.]

Because these herds of animals (there are many engraved knife handles and combs totally littered with parades of animals) and prisoners occur before Horus first shows up, it would seem that the asteroid swarm (or some of these) were independent of Horus. This would account for the fact that the "cattle counts" are recorded separately from the passage of Horus. To have dead bodies (of humans) floating in the sky is reminiscent of the herds of dead animals depicted in Southwestern European caves.

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Note 16 --

The earlier suggestion identifying Geb as the Peratt plasmoid of the south (see the chapter "Saturn and Archaeology") has additional consequences. Jane Sellers, in *The Death of Gods in Ancient Egypt* (1992), describes the Sed Festival of the Egyptians, from Ptolemaic sources (300 to 40 BC). Sellers writes:

"When the king reappears [after exiting from a chapel] he is wearing a kilt; in his right hand is the usual flail scepter and in his left is an object resembling a small Scroll. ... The king runs with this and displays it [the scroll] to all, proclaiming it was given to him by Osiris in the presence of the god Geb."

She adds a quotation from texts of the temple of Edfu (from Henri Frankfort, *Ancient Egyptian Religion*, 1948):

"I have run holding the Secret of the Two Partners [which is the name of the scroll]. The Will [another title] that my father has given me before Geb. I have passed through the land and touched the four sides of it. I traverse it as I desire."

"Touching the four sides" is suggestive of the "survey of the world" as related in the *Chilam Balam*, especially if this ceremony, almost inexplicably, involves the God Geb, who, as I have suggested, is likely to be the southern plasmoid. The institution of the Sed Festival would then date from remote antiquity. It might jokingly (or not) be suggested that the "Secret of the Two Partners," which is also called the "House Document," is a land deed. Who are the Two Partners?

The flail scepter is normally understood as a grain flail. A second matching scepter, which appears in association with the pharaohs at a later time, is the shepherd's crook. The obvious implication is that these are symbols representing the commerce of Upper and Lower Egypt, which were more or less divided into agriculture and animal husbandry. But it seems more appropriate to the grandeur of a pharaoh if the flail was the sweeping device (the bramble bushes or heteromacs) for the overhead lines of blazing electrons of the Peratt polar column of 10,900 BC to 8347 BC, and that the crook is the polar plasma plume, which, although first seen in 3147 BC (as related by the sculptures at Palenque in the Yucatan), was not added until much later. The shepherd's crook is the symbol for "years," as in the phrase "Osiris of a million years," found in the

Book of the Dead.

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Note 17 --

The asteroids are located at 60 degrees in front of and behind Jupiter (an angle measured from the Sun) because at this location the forces due to the gravitational attraction of Jupiter and the Sun are balanced. Located anywhere else along Jupiter's orbit, the asteroids would be disturbed gravitationally, and move into an elliptical orbit away from the orbit of Jupiter. The stable orbital positions at 60 degrees apply to any planet.

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Note 18 --

Despite the definitive statement by Millett, I still feel that it is more likely that the four standards represent the "trees" of the cardinal directions -- the polar and equatorial plasma plumes.

But since the fifth standard apparently appears after 2490 BC, it might be the appearance of Jupiter on a slimmed down lower plasma outpouring, and much longer than the earlier apparition. Jupiter at this time was much further away from Earth. The steeply peaked shape of the sun-temples recalls this shape also. The fifth standard was found carved at the base of a sun-temple. This fifth standard is thus likely entirely equivalent to the fifth directional tree of the *Chilam Balam*, which appears only once, and is associated with Jupiter as the "green tree of the center."

Additionally, it could be suggested that the city of Pe in the delta is actually Saturn above the North Pole before 3147 BC. Apparently Pe was occupied for 500 years in predynastic times, but was only a small village during the Old Kingdom and the Middle Kingdom, even though the Egyptians during these times referred to Pe as if it was still a major religious site and capital of the delta region. The inscription quoted by Millett is dated to early in the fifth dynasty, 2490 to 2445 BC.

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Note 19 --

Apollodorus (AD 100) makes the ten labors of Hercules into 12 labors matched to the signs of the zodiac, starting with Leo. Note that all of the labors involve

travel. Hercules is constantly on the move. This more likely represents the doings of Mars in the era of 806 BC to 687 BC, when Mars made nine appearances.

Gilgamesh, in later renditions of the *Epic of Gilgamesh* (from Assurbanipal's library, thus before 612 BC), likewise travels through the signs of the zodiac in his adventures. But note that there are ten adventures originally, not nine.

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Note 20 --

The mastaba graves of the Horus pharaohs of the first and second dynasty at Abydos are apparently cenotaphs (that is, empty graves), with the alternate (real) burials at Saqqara. Abydos was also the city of Osiris, and his "grave" became a site of pilgrimages in later antiquity. If then the graves at Abydos start with the grave of Osiris, followed by a dozen graves of Horus, it might be suggested that the Egyptians *pro forma* provided graves for the deity which the pharaoh represented (or, in their thinking, "was").

It is thought today that there was political pressure for two graves, because the pharaoh was King of Upper Egypt and Lower Egypt, and thus needed to be buried once in the south and once in the north. But this has the ring of an inappropriate imposition of contemporary political philosophy.

Despite the design of the Giza pyramids as cenotaphs, the queen and officials of the court of Khufu were all assigned graves at carefully placed locations (as mastabas) surrounding the pyramid of Khufu. The real grave of Khufu has not been located.

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Note 21 --

On the placement of the pyramids in the manner of the stars in the belt of Orion, see Robert Bauval and Adrian Gilbert *The Orion Mystery* (1994). This is a good theory gone wrong. Orion has nothing to do with Egyptian religion, and basing a whole book on the alignment of one air shaft seems ludicrous. Additionally, as I have pointed out in another chapter, the sky has changed since the pyramids were built.

Here is a comment from J.A.R. Legon, originally one of the sources for Bauval and Gilbert:

"One of the generally accepted theories of modern Egyptology has been that the ancient Egyptians identified their god Osiris with the constellation of Orion. This association has become so widely recognized that it would seem futile to dispute the conventional view, and yet a detailed study of the Pyramid Texts and some other primary sources for ancient Egyptian astronomy casts considerable doubt over the validity of the interpretation, and suggests that the equation between Osiris and the constellation of Orion has been merely a convenient make-shift adopted by scholars owing to the lack of more precise information."

-- J.A.R. Legon, "The Orion Correlation and Air-Shaft Theories," *Discussions in Egyptology* Vol. 33 (1995), 45-56.

He continues:

"I have taken the view that his theory depends on a misunderstanding of the religious and funerary beliefs of the ancient Egyptians, as expressed in the Pyramid Texts of the Old Kingdom. There is, after all, no evidence from the Pyramid Texts or elsewhere to support the idea that the successive pyramids of the Fourth Dynasty were supposed to be equated with different stars of the constellation of Orion; and I find the idea conceptually implausible in view of the fact that the successive kings of the Old Kingdom each wished to be identified with 'S3h' -- Osiris -- in the afterlife, in precisely the same terms from one reign to the next."

-- J.A.R. Legon, from his web page.

Additionally, as others have pointed out, for a hundred years before Giza and for four hundred years after, the ceilings of tombs were often decorated in nothing but rows on rows of star symbols, with a complete disinterest in the actual stars and constellations. Stars were only seen as so many twinkling pinpoints in the sky. Even in later ages, the Egyptians would reverse star maps at will to fit the decor of a tomb, and render constellations as they saw fit.

H. W. E. Saggs, in *Civilization before Greece and Rome* (1989), dismisses the astronomical acumen of the Egyptians, writing:

"In view of the low level of their mathematics, it is not surprising to find that the Egyptians made very little contribution to theoretical mathematical astronomy; as far as current evidence goes, they produced no texts which deserve this description until the final centuries before the Christian era,

after they had become open to Babylonian and Hellenistic influences."

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Note 22 --

The colors do not all add up. The second pyramid should have been green or red. Green was the color of Osiris before entering the asteroid belt, and red afterward (although the date for this is uncertain).

Part of the red granite of the pyramid of Menkaure has been dressed. But it should be pointed out that only the bottom 16 courses are red granite. The top courses are missing, suggesting that the construction was left incomplete.

The best theory on how the pyramids were constructed requires that the facing was precut (at an angle) and installed with each layer of stones. The slope of the facing would support ladder-like runways used for hauling blocks up the side of the pyramid.

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Note 23 --

I would also argue against any idea of incorporating some grand mathematical constants, like *pi* or *phi*, despite what Herodotus was led to believe on the testimony of the priests of Sais. The mathematics of the Egyptians was crude at best. They never got *pi* (the ratio of a circle's diameter to its circumference) closer than about 3.2 -- with the use of a series of fractions. I used 22/7 in high school, which comes two orders closer to the correct value.

And what would the Egyptians use *phi* for? It has been suggested that the ratio of 1.6+ to 1 was used in architecture. *Phi* is approximated with the ratio of the long side to the short side of the 3-4-5 triangle. It is also the ratio of the orbital (as well as the synodic) periods of Earth and Venus (today, and possibly in the past). European thinking along the notion of "the wisdom of the Ancients" has, even in this century, held that the Egyptians felt the need to pass mathematical constants on to future generations, as if we couldn't figure that out.

The deviation of the angle of the slope among pyramids as well as the angle of the access shaft speaks to rule-of-thumb construction, not mathematical constants and certainly not dead-on surveying practice. It is not at all easy to get the initial angle correct. But once it is set, it is relatively easy to excavate and finish the boring visually in an absolutely straight line over hundreds of feet.

The fine details of surveying seemed not to have bothered the Egyptians, for the angles of these borings vary quite a bit, even if the actual shafts are absolutely straight.

They certainly could do surveying, for taxation depended on knowing the area of the cultivated land, and they seemed to have used the fact that the diagonal of a square area can be used as the side of a larger square which will cover twice the area. And they certainly knew the 3-4-5 triangle -- which is still used today by carpenters to square up building foundations and set walls perpendicular to each other.

It looks, in fact, as if the 3-4-5 triangle was used in the design of the slope of the Giza pyramids (and one of Seneferu's pyramids at Dashur). The Giza pyramids have a cross section of two 3-4-5 triangles set back to back with the "3" side as the base. It would be easy for stonemasons to check accuracy, for if the "5" side is held against the slope, a plumb bob along the "4" side will determine the accuracy of the facing of the exterior blocks. Using the 3-4-5 triangle as the basis for design also makes the estimates for materials easier since all measures of materials are multiples of the sum of the three sides of the 3-4-5 triangle -- the base area, perimeter, volume, and area of the facing stone.

The angle between the "5" and "3" sides is 53.1 degrees. The slope of the Giza pyramids is measured or estimated variously from 51.3 degrees (Menkaure) to 53.2 degrees (Khafre). Perhaps an inverted isosceles triangle with a base of "4" and legs of "3" and a plumb bob (or a "2-3" triangle where "3" is the hypotenuse) was used at the Bent pyramid and the Stone pyramids at Dahshur to achieve the 43.5 (43.36 actual) degree angle.

The access shaft angle of 26.5 degrees is found from a slope of 2:1. This angle has nothing to do with the elevation of the polar axis above the horizon, which is 30 degrees at the latitude of Giza. All pyramids since Seneferu used this angle, or a measure close to it.

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Note 24 --

Egypt's 3000-year repugnance for foreigners, and antipathy especially to the Asiatic nations, has to be rooted in the accomplishments of the Old Kingdom, especially the Giza pyramids. Egypt was the home of the dead Gods, and the pharaoh ruled upper and lower Egypt -- upper Heaven and lower Earth. The Sudanese were welcomed -- living in what was an extension of the Nile -- but

not the Libyans.

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Note 25 --

I accept Velikovsky's suggestion of placing the monotheistic pharaoh Ahknaton in the ninth century BC (circa 850 BC). This will completely change the chronology of the New Kingdom.

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Note 26 --

Kurt Mendelssohn, in *The Riddle Of The Pyramids* (1974), addressed the three pyramids built by Seneferu, concluding from available evidence that at least two were under construction at the same time, a conclusion which goes against the thinking of Egyptologists that individual pyramids were built one at a time by individual pharaohs. It affirms, however, the conclusion reached by Colin Reader that the three pyramids at Giza were planned as one unit. Mendelssohn writes:

"We have seen that the sudden decision to change the shape of the southern pyramid at Dahshur [the Bent pyramid] resulted from the catastrophe at Meidum. The disaster, as could be proved conclusively, took place in the middle of the third construction phase at Meidum. On the other hand, the pyramid at Dahshur had reached about half of its projected height when the angle of elevation had been changed. This means that roughly 70 percent of the masonry of the Bent pyramid had already been placed in position when the previous pyramid at Meidum was still under construction. The inescapable conclusion is that the building periods of these two pyramids overlapped very considerably."

Likewise [\[Ernest Moyers\]](#), in "Some Perspective on Pyramid Chronology" (2001), notes:

"... all four Great Pyramids [he includes the two pyramids at Dahshur] were part of one vast construction project. That project was carried on linearly until the last Great pyramid was built, and could not have been associated in any way with reigning kings. If we are willing to swallow all the logistical and mechanical difficulties I outlined ... to make the construction cover 100 years of time according to traditional spans, then some person or some segment of the population was able to not only conceive of the

project, but also to execute it. Either this meant that a continuity of concept was maintained between generations, with full knowledge of design and methods of execution, or the genius behind the design lived an extraordinarily long life."

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Note 27 --

Seneferu's third pyramid is known as "the red pyramid." The core is a reddish limestone, although it was faced in white limestone from the Tura mountains on the east of the Nile. (Only the core shows today.) Thus originally it also had a white exterior.

The names of the two large pyramids are "The Southern Shining" and "The Shining," suggesting that, perhaps rather than built as trial versions of the Giza pyramids, these pyramids represent the three ball plasmoids of the south. No name has survived for the smaller third (red) pyramid.

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Note 28 --

For the obsessive construction of giant statues on Easter Island, Jared Diamond suggests a number of requirements. Foremost is the existence of an egalitarian elite -- petty clan chiefs -- where no one person or group had overall power. It also suggests a division of the population into separate classes -- stone masons, farmers, and chiefs or priests -- and the additional requirement of a substantial economic base, like farming, to allow for feeding those who did not farm.

Some 800 statues exist; 350 were erected. All the rest were in a state of being carved or readied for transport. The whole project was abandoned at about the time that the last trees were cut down. Before erecting the statues became the obsession, the Easter Island natives built giant platforms at the edge of the sea, which are also found at nearby islands (1200 miles, 2000 km, away). There are prototypes for the statues on other islands also. See Jared Diamond, *Collapse* (2005).

[\[return to text\]](#)

Note 29 --

Henry Adams, *Mont Saint-Michel and Chartres* (1904).

[\[return to text\]](#)

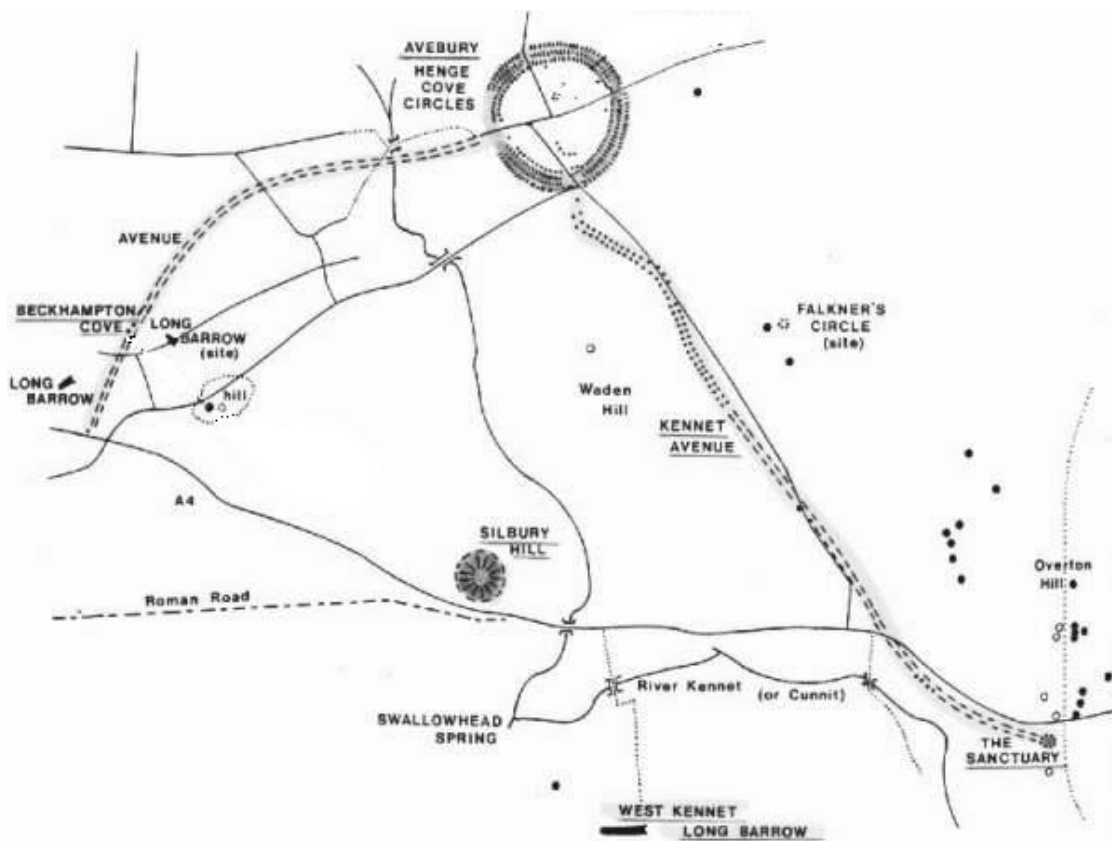
Note 30 --

By Roman times the Celts of Western Europe firmly believe in metempsychosis, hundreds of years before anything resembling the concept of "life after death" was introduced by Christianity or its predecessor religions.

The Western Celts also clearly recall conditions of the "Era of the Gods" in the myths first recorded in medieval times (4500 years after the events). But, not surprisingly, we hear nothing of barrows or henges in their recorded myths -- only about sacred springs and trees. Since they were very late invaders of Western Europe and the islands of England and Ireland, they had not witnessed the building and construction involved in the barrows, henges, and cursuses.

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Note 31 --



[Image: Avebury henge and causeways,
Silbury hill, the Sanctuary. After stonehenge-avebury.net.]

The purposeful rebuilding of the post structure at the "Sanctuary" is noted in *British Archeology* (February 2000). It was rebuilt up to five times, not to enlarge the structure, but to replace it with a structure of the same dimensions. With each rebuilding the posts were removed and the holes backfilled, except the last time, in circa 2300 BC.

There is a second causeway, of about equal length, leading off from the main circle toward the southwest. It ends in nothing but two unconnected long-barrows which were built in 3600 BC, used for a thousand years, and apparently backfilled and sealed during the construction of Avebury henge.

The causeway to the southwest looks like a celestial path leading to the oval structures in the southwest skies. Note the 30-degree bend.

West Kennet Long Barrow is a chambered barrow and located directly south of Avebury, south of the Kennet river. It was started in about 3700 BC. East Kennet Long Barrow, a little further south, has not been excavated.

[\[return to text\]](#)

Note 32 --

The willingness of generations after 3000 BC to constantly remodel Stonehenge and keep its use current may be due to its limited size and central location.

The long history of constant reconstruction over the 1500-year period after 3147 BC might suggest that the building and rebuilding of the monument might have been the most important function of all, even though the actual meaning of this eludes us. This is not different from Mesoamerican monumental building practices.

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Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Chapter 19: Midnight Sun.

\$Revision: 42.1 \$ (sun.php)

Contents of this chapter: [\[The Midnight Sun\]](#) [\[The Temple Cultures\]](#)
[\[Something Is Missing\]](#) [\[Consciousness\]](#) [\[Bicameral Kingdoms\]](#)
[\[The Flood of Noah\]](#) [\[A Second Strike\]](#) [\[Endnotes\]](#)

This chapter will cover the 24th century BC: the advent of the midnight Sun, the temple cultures, and the event of 2349 BC which was misnamed "the flood of Noah." This is a popular chapter, for the flood of Noah would seem to everyone to explain all of the strangely destroyed and overturned landscape forms that we see. But actually it explains very little. Destruction of the landscape of Earth had been going on for millions of years. All the same, the flood of Noah is addressed below, after first establishing something of the social and political environment of the era.

The event of 2349 BC was probably the most impressive event ever -- and the most frightening. The next two chapters will expand on this and demonstrate that the "flood" never happened on Earth.

The Midnight Sun



*[Image: Jupiter with a banded headdress on a throne
of a temple glyph. From the stele of Hammurabi.
After printablecolouringpages.co.uk.]*

After the visits of Horus had ceased, and as the pyramids at Giza were under construction or shortly before (about 2600 BC), Jupiter again became the most spectacular object in the sky. The planet had at that time completed its movement through the main portion of the asteroid belt in receding from the Sun, and again developed a coma, as comets do today when changing their distance from the Sun. It sported a gigantic coma, much larger than the diameter of the Moon, and a massive mountainous plasma plume from its south pole, which extended down to the Earth's horizon (as seen in Egypt and Mesopotamia). Saturn, on the other hand, had probably distanced even further, and may already have become just a mere speck in the sky.

The "collision" between Saturn and Jupiter had changed the orbital speed and direction of both (actually a total of four planets) and as a result assigned them to orbits much further away from the Sun. In effect, the movement of Jupiter and Saturn were outward bound spirals, only slowed by their travels through the asteroid belt. I suspect that Jupiter took about 890 to 990 years to finalize its orbit. The movement of Jupiter through the Solar System is detailed in the next chapter.

The title of "Sun" was transferred from Saturn to Jupiter everywhere in the world. The Egyptians simply relocated their original creator God, Ra ("sun"), from the North Pole to the ecliptic. The title "Sun" for Jupiter was deserved, for after Jupiter left the asteroid belt, it would have lit up the night sky brighter than the Moon. Plutarch suggested, in circa AD 200 (in *Isis and Osiris*), that Jupiter was seen at first as a globe three times the diameter of the Moon. That's big.

The tail of Jupiter, a plasma in glow mode, might have extended a half billion miles (800,000,000 km) away from its south pole. Because Jupiter has a very strong, but reversed, magnetic field (unlike comets which have no magnetic field), most of the plasma expulsion would leave the planet at the location of its north magnetic pole -- at the bottom. This tail is the mountain that Marduk rose on, "in the center of the sky," or, as the Egyptians describe, "in the primordial waters" -- the Duat. The few depictions we have show the plasma as a very steep mountain.



[Image: Left, carved ivory Amulet, Anatolia, circa 3100 BC. Right, carved petroglyph, China, circa 3000 BC. The "owl-eyed" petroglyphs occur throughout the world by the thousands.]

A lesser portion of the plasma discharge would impinge at the south magnetic pole, located at the north geographic pole (and thus at the top), and would broaden like plumes away from the planet. This is shown in Mesopotamian images as rays emanating from the shoulders in depictions of Marduk (Jupiter). The identification of Jupiter in Akkadian depictions is certain from the banded headdress he wears, which represents the banded atmosphere of the planet.

Jupiter would indeed have blazed like a sun once it left the asteroid belt. In historic times the comas of comets have managed to light the night sky to the point of blotting out the stars. Comets are only a few miles in diameter; Jupiter is 89,000 miles (140,000 km) in diameter. The Maya of classical times (AD 400 to AD 900) still called Jupiter "the Midnight Sun," as did many other peoples in historical times.

The planet with its circular coma traveled on the ecliptic, where all planets travel. The mountain tail, however, would extend far below the ecliptic and seem to shine into the "water" of the sea of the southern sky, the Duat. How much of the circular coma or the mountain tail would be seen under that condition would depend on the time of year. During more than half the year the ecliptic rises above the upper limit of the Absu.

Where the ecliptic dipped below the limit of the Absu, the coma of Jupiter would illuminate the Absu from behind. The central coma certainly would be bright enough to be seen shining right through the dust of the Absu. We also have later graphical images of the large red disk of Ra placed between twin mountains overgrown with reeds. The twin mountains are the Absu at the time of the equinox.

When Jupiter was seen in the sky, which happened for only a part of each year, it would first be seen in the northeast or somewhere in the east, depending on the time of the year and the location of the observer. Initially it would be of a small size and would move west during the course of the night. Over the following few months Jupiter would loom larger when first seen at night, and closer to the south, and following this it would expand to its full size in the south. It would then diminish in size again, moving toward the west, and disappear for perhaps 5 or 7 months. As an exterior planet, Jupiter was not normally seen by day. Gudea of Lagash, however, claims seeing Jupiter as if during the day.

Cylinder B of Gudea, governor of Lagash in the 22nd century BC (circa 2141-2122 BC), reads that Ningirsu "rose in overwhelming splendor," "in the land it became day," and "he changes darkness into light." Ningirsu has been identified as Shamash ("sun") and is thought by some mythologists to be Saturn, but Saturn had disappeared long ago. This is a description of Jupiter, although perhaps a recollection (the archaeologically assigned date of Gudea's Cylinder B is a decade late). The very fact that we have these accolades almost certainly determines that the "overwhelming splendor" was not a regular phenomenon. Perhaps Gudea's acclamation resulted from seeing the additional brightness of

Jupiter when it appeared above the Absu. That would happen only periodically, that is, every dozen years or so.

Shamash, held by archaeologists to represent the Sun (it means "Sun"), is Jupiter. E. A. Budge, in *Babylonian Life and History* (1925) quotes a Babylonian (Akkadian?) hymn to Shamash, as:

"[O Shamash,] thou stridest over the wide and deep sea. ... Thy beams of light go down into the Ocean, and the vast mass thereof seest thy light."

Here is a sun which lights up the depths of the "ocean" and walks across the sea, as could be seen in observing the Absu. And, as shown below, travels an undetermined or irregular course, and shines by night and, in fact, both by day and by night. It becomes even more amazing when Jupiter was periodically seen during part of the night and during part of the day.

"Never by day dost thou cast gloom, they face never becometh dark, thou fillest thyself all the night long, and lettest light stream forth from there."

This is not the Sun. This is not the Moon.

"Thou dost hasten over an unknown and remote course, leagues uncountably long. O Shamash, thou journeyest by day and turnest not back by night."

This is certainly not our current sun.

Jupiter became the reigning god of Heaven. How long the coma condition lasted I am not at all certain. I suspect that Jupiter continued to blaze in the night skies for only a few hundred years. In the following chapter, I will suggest that the display ended completely (after one interruption) in 2150 BC.

The descendants of the pharaoh Khufu, builder of the first giant pyramid at Giza, added "Re" to their names after circa 2550 BC, as did all the pharaohs of the following dynasties. "Re" is Jupiter, but "Re" is identified by modern archaeologists with the daytime Sun. ("Re" or "Ra" translates as "sun.") The first pharaohs of the following dynasty (the fifth dynasty, after 2490 BC) construct "sun-temples" on the west bank of the Nile, in addition to their own burial pyramids. The sun-temples consisted of a steep obelisk mounted on a platform, looking like the outpouring of plasma from below Jupiter. The obelisk became the symbol for Re. Only six such temples were built by successive rulers of the

fifth dynasty. The sun-temples stop being built, we can suspect, after the display disappeared.

The sun-temples are an indication that, during the period of the fifth dynasty (after 2494 BC), Jupiter stood in the sky as a large blazing globe. After some 50 years of these constructions (ending by 2445 BC), no additional sun-temples were ever built. We can assume that the coma of Jupiter had disappeared again. Eventually the blazing of Jupiter would have come to an end as the planet slowed its retreat from the Sun and its charge balance (electric potential) started to match the electric field of the Sun at its remote location. The next chapter will suggest a sudden final extinction of Jupiter and a blazing fire. That happened in circa 2150 BC. By that time Jupiter had stood as the Midnight Sun, except for two interruptions, for a 1000 years.

In both Mesopotamia and Egypt, the planetary Gods (which still included Venus, Mars, and Mercury) were now understood to travel along the river of the ecliptic and across the ocean of the Absu (Duat) by ship. How else could one travel over a sea? Since the rings of the Absu consisted only of thin layers of dust and gases, a bright object behind the Absu, like a planet, would cause a glare to spread in the horizontal direction. It would at least have looked as if the planet was being transported on a raft with sharply upturned stern and bow. After the fall of the Absu (in 2349 BC) only a single upper ring remained, so that planets would still be seen on a raft where the ecliptic crossed (fell below) the ring. Even in Roman times, all the Gods of Egypt were still shown in ships. It had become the proper way to depict gods. It is very likely that the last ring of the Absu remained in view through the Middle Ages of our era.

For 3000 years the Gods were depicted in ships in Egypt. There are pottery depictions of celestial ships from before 3147 BC, but these portray the ship seen in navigation around the globe of Saturn as its bright crescent (as Talbott has suggested). During the time of the three Kingdoms of Egypt, statues of the Gods were ferried up and down the Nile to visit Gods at other temples and carried in processions in boats. The deceased also had to cross the sea of the southern sky, a concept already well established before the first Egyptian dynasty. Complete ships were interred adjacent to pyramids; two have been found next to the pyramid of Khufu (Cheops) at Giza.

The later *Book of the Dead*, which promises that the dead pharaoh will ride in the "barque of the Sun," is referring to the ship of Jupiter, Re, the Midnight Sun.

This was not just an Egyptian fantasy; the form of this celestial ship was seen worldwide. [\[note 1\]](#)

"Virtually every mythical form of the sun god's dwelling -- be it mother-womb or world wheel, city, temple or kingdom, egg, throne, or circular serpent -- was declared to be a 'ship' sailing on the cosmic waters."

"It is not surprising, then, to find Scandinavian rock carvings showing the wheel of the sun resting in the cosmic boat, or to discover that -- from Assyria to Britain and from India to Polynesia -- images of cosmic ships either contained wheels or were set on wheels and conveyed around dry land in the rites. As symbols of the sun god's enclosure, ship and wheel merge as one."

-- David Talbott, "The Ship of Heaven" *Aeon* (1988)

Talbott ends up relating the disk (wheel) and ship to the crescent seen rotating along the edge of Saturn during the "Era of the Gods." But the ship with a disk or globe was also an image seen in the sky after the close of the "Era of the Gods." To the ancients the Absu or Duat was a "sea" without question and seeing the planet Gods traveling through this sea on a flat skid or in a boat was real.

The flat skid shape is the natural result of the radial spokes in the rings of the Absu, which result in reflective marks perpendicular to the spokes, and a quarter wavelength removed, as any photographer will verify. Because the Absu thinned out above the brightness of a planet there would be a lesser reflective mark above the image of the planet. This explains the long persistence of the "ship" imagery.

Note also that the "disk" or "wheel" representing the Sun God is always depicted as very large. Thousands of years of Egyptian illustrations never relinquishes in depicting the image of the "sun-disk" of Re as disproportionately over-sized. We are not being shown an object with a diameter of the Moon or Sun, but something vastly and impressively larger. The same can be said for the depictions of the "sun" in his boat in other lands in antiquity. This simply is not the Sun, but an immensely larger globe. If seen as three times the diameter of the Moon before reaching its final orbit, the coma of Jupiter would have had an actual diameter of three million miles. That is more than three times larger than the Sun. No other planet ever showed so spectacularly. The inner planets, Venus, Mars, and Mercury, might have been brighter, but never as large, except when Mars or Mercury cruised close to Earth. The inner planets are peanuts compared

to the pumpkin size of Jupiter -- both in actual diameter but especially when seen with a coma. [\[note 2\]](#)

The disk of Jupiter was red, as clearly seen in Egyptian depictions. It was no longer green, as Osiris had been depicted earlier. I do not know when this changed. There are Vedic documents which claim for Jupiter to have a green body but dressed in a red mantle. In Egypt all the renderings of Re consist of a large red disk (this has thrown off the archaeologists). The *Chilam Balam* books of the Maya also claim Jupiter turned red:

"Red was the mat on which Bolon-ti-ku [Jupiter] sat. His buttock is rounded [shaped] like a hat, as he sits on his mat."

Other passages of the *Chilam Balam* claim that the whole world became red during the rulership of Bolon-ti-ku. [\[note 3\]](#)

After an annual disappearance of some months, Jupiter would first be seen again in the east. Many people watched for the appearance of the red star of the east. The Saturnian researchers have had problems with the identity of a Red Morning Star, and have all but suggested that Mars at one time might have been on an orbit between the Earth and the Sun, similar to Venus. North American Indians (the Pawnee) paid tribute to a morning star which was red, for which neither Venus nor Mars would properly qualify: Venus was not red and Mars was not an inner planet, even if it overran the Earth's orbit. Jupiter, however, had a massive red coma.

In the early 20th century it was suggested that Mars would have been the red star. The appearance of Mars in the east was checked against Pawnee festivities for the period of AD 1800 to AD 1900, but the festivities happened only at 9 or 10 year intervals. Mars is overtaken by Earth (making Mars appear in the east) every two years.

The original "red star" was Jupiter, which was overtaken by Earth every 12 years (today), but at a reduced interval at an earlier time, when Jupiter additionally would have been very large and very red.

The progress of Jupiter across the heavens is so slow that Earth catches up with a sighting of Jupiter in the sky. During a portion of its travels it might appear during the day or part of the day. Jupiter was certainly bright enough to be seen in daylight. Each following day (or night) would bring Jupiter higher up into the

sky, since the Earth traverses a zodiac house (30 degrees) in a month whereas Jupiter would require a year to do the same.

Jupiter had a calming influence. Over 3000 years he never lost his status as chief God. He also never showed unexpected behavior, unlike the inner planets -- the other Gods. These secondary Gods visited Jupiter frequently, that is, they were seen in the same sector of the sky, but Jupiter only slowly moved from one zodiac house to the next over the course of a year. And he remained on his mountain.

The Temple Culture

The "Era of Kings" started with a legacy from the immediately preceding "Era of the Gods" and we can therefore assume that these times started with the initial expectations of the resumption of a good life, order and purpose, and a working economy. However, none of these were initially forthcoming because of the interruption of the flood followed by the absence of guidance from the Gods. Only the temple culture, which had been in charge of the economy in the previous age, provided a unifying direction. The priests were called upon to explain what the Gods had done, why they had left, and what could be done in their absence.

The solution to the void left by the departure of the Gods was the installation of a king as the steward of God or as the God himself. This happens simultaneously in Egypt and Mesopotamia. It cannot be stressed enough what a radical change was made in 3100 BC when civilizations with no apparent leadership became kingdoms and theocracies. The need for authentication and authority must have been intense.

The solution in both locations was also to foster a civilization which attempted to recapture the past. The building of cities, city walls, temples, and graves, the construction of canals, production of grain, and the waging of wars, writing, the assignment of kings as the stewards of God, and a hundred other implementations were all believed to have been instituted by the Gods above the north horizon of the previous age. [\[note 4\]](#)

Simplistic as this might seem, all indications are that this was sincerely believed by the people and by the priesthood and the kings. Both Sumer and Egypt used languages with a grammatical structure which looked only to the past and which in effect held that the future was something one backed into. And with such a

reversed sense of time and the inability to imagine alternatives, the mandates of the Gods and their earthly representatives were inarguable, and answered questions for the masses, at the same time providing justification for the governing elite.

This mindset induced a strong conservatism. It also removed the possibility of mankind claiming for its own the advances made in the past. Despite the extensions in trade and commerce and the growth of cities, civilization remains but an imitation of the original "Earth," and virtually nothing new is introduced for the next 2000 years. Everything was, by design, a reflection of "how things were at the beginning," and was supported by the languages used throughout Mesopotamia and Egypt, which did not have a future tense. A slave-state mentality had been introduced which would control societies for the next three millennia. [\[note 5\]](#)

Something Is Missing

Is this the legacy of the "Era of the Gods," during which humans had learned to manage large farming and trading concerns, and had invented the wheel, bronze metallurgy, irrigation, and writing? You would expect a continuation of new ideas and advances. And, in fact, there are some. For one thing, the politics of the city-states continued to evolve. Larger and much more complex irrigation projects were instituted. In Sumer, trade was expanded to include the import of metals from the region beyond the Zagros mountains, wood, stone, and obsidian from Anatolia, and other products from India and East Africa. Egypt expanded its territory to control copper mines in the Sinai, transport of basalt blocks from as far south as Aswan, import honey from Crete, and lumber from Lebanon. There were changes and large improvements in ceramics and in bronze metallurgy.

However, there were no changes which did not proceed directly from a previously known process. There was a lack of imagination compounded by the turn to conservatism in the solidification of social structures, reinforced by the rapid rise of a privileged elite and the ever-expanding religious rites and superstitions.

It is this last, the overwhelming obsession with the multiple Gods, spells, ceremonies, and religious practices, which remains foreign to us today. And, as Julian Jaynes notes in his book *The Origin of Consciousness in the Breakdown of the Bicameral Mind* (1976), it is completely at odds with the expectation one

would have for a people descended from Paleolithic hunters with their ever-expanding production of art and tools, or the ingenious farmers and villagers of the Neolithic who developed fishing, herding, and farming. Yet, the preoccupation with the demands of the Gods remains the central issue of the later civilizations for over 3000 years.

Is Jaynes on track? Something certainly was missing in Mesopotamia.

"From its beginnings in Sumer before the middle of the 3rd millennium BC, Mesopotamian science was characterized by endless, meticulous enumeration and ordering into columns and series, with the ultimate ideal of including all things in the world but without the wish or ability to synthesize and reduce the material to a system. Not a single general scientific law has been found, and only rarely has the use of analogy been found."

-- *Encyclopaedia Britannica*, 15th edition

We do have a few examples of analogies. One is the Mesopotamian use of tokens since 8500 BC to represent products, and the use of bottle seals as signatures. Both of these are metaphorical displacements. But what is astounding is that it took 5000 years to take the next step -- that is, to map these three-dimensional objects to a flat plane and produce a script. The first step was to pictorially inscribe the content on the outside of sealed clay jars containing the tokens. These were used as bills of lading by trade caravans and ships. The conversion of these pictorial inscriptions to a usable script took much less time, and its development was predictable as an extension of the first efforts. The tokens were eventually discontinued. [\[note 6\]](#)

Describing a similar lack of the ability to conceptualize, I.E. Edwards's book *The Pyramids of Egypt* (1985) reads like a comedy of errors when it comes to the details of the construction of the pyramids of the Old Kingdom (Dynasty 4 through 6, 2700 BC through 2200 BC). One structure after another was obviously interrupted by changes in the plans. What the book describes, over and over again, and over a span of hundreds of years, are obvious changes in construction after considerable work has been completed. Subterranean tombs and access Tunnels are frequently re-excavated or moved to a different location. This happened with the exterior buildings as well (the valley building and mortuary temple). Walls and building extensions were added and subtracted almost arbitrarily.

I am not talking about the inferior completion of a pyramid, or failure to complete the pyramid of a predecessor, or the theft of materials from an existing pyramid in order to complete a later structure. And it is not that the Egyptians could not measure accurately. The pharaohs oversaw the work on their graves closely, often relocating to the site of the construction. The crews could locate a tomb room exactly under the apex of a pyramid when required to do so. However, rarely are the first efforts at digging the subterranean structure correct. Everywhere we see changes in direction, blind corridors, abandoned rooms (and not just for the purpose of foiling potential grave robbers). Although inconceivable to us, it seems that the overseers lacked the imagination to incorporate the details of a structure into a single unit, and frequently could not coordinate the excavation crew with the pyramid crew (although, overall, an enormous amount of work was completed).

This failure of a complete overview, the inability to simultaneously see the details and the complete picture, extends to art as well. It is apparent in the images of Sumer and also in the standardized Egyptian depiction of the human body on flat surfaces showing a frontal trunk but with the head and legs in profile. This was noted by Jaynes, who adds that this is also especially to be noted among early Greek two-dimensional figures, which are often shown as curiously disarticulated groupings of arms, legs, trunks, and heads. This does not extend to three-dimensional art. Even the earliest Egyptian sculptures in the round were totally realistic, even if somewhat idealized.

Developing Consciousness

The failure in imagination is a lack of subjective consciousness and this shows also in the languages of Mesopotamia and Egypt. Julian Jaynes notes that the Sumerian, Akkadian, and Egyptian languages were "concrete from first to last." The languages had no room for analogies or metaphors. The speakers could not imagine alternatives, perhaps could not imagine themselves. To *imagine*, one has to take a leap from the concrete. It requires the mental construction of imagined action beyond the exigency of the moment and the needs of the everyday. [\[note 7\]](#)

The method of overcoming this failure in imagination, Jaynes proposes, is through an extended use of metaphors. The primary trope is analogy, a space in the mind which is mapped to the equivalent space in the real world. With the addition of an imagined self inhabiting this imagined space, we are suddenly presented with ever-expanding possibilities of imagined actions in these places,

interpretations of the effects of the imagined actions, and even the design of tools imagined as solutions to problems. We, in our age, do this sort of mapping to a mental space with past, present, and future experiences, testing the efficacy of possible actions by stepping through them in our mind. We also lay out time and mathematical concepts as viewable "spaces" in our mind.

Jaynes's concept (in brief) of consciousness -- more precisely, *subjective consciousness* -- is exactly this placement of an "imagined I" into imagined spaces in the mind. It is not actually "you," but a substitute, an analog. You can look through the "eyes" of this "substitute I" or even observe yourself from afar in your mind. If something in real space and time requires your attention, the "I" will shift to be located directly behind your real eyes. Note that, as so defined, "memories" (as we imagine recollections) and "self-awareness" are not part of "subjective consciousness." These are biologically determined and are common to all animals. Jaynes suggests that historically, subjective consciousness was a late and learned acquisition for humans. Subjective consciousness is learned, and is culturally transmitted. Some people never learn it, yet they will appear fully functional.

The stupendous advantage of subjective consciousness is the ability of the mind (actually the speech areas in the left rear brain) to be able to analyze the outcomes of multiple alternative actions, to guess what others might think and do, and to understand how others see us. Our subjective consciousness is responsible for all our analytical abilities. We use this with such facility that it is almost impossible to recognize the part of us which does things without "thinking," things which include all rote activities. [\[note 8\]](#)

Just as language is learned by children from their parents, so is subjective consciousness. You can watch parents proposing "what if" situations to small children. Learning subjective consciousness requires language as a base, the ability to use metaphors as a means, and the examples of others. Jaynes places the maturing of subjective consciousness by individuals at about age 7 or 8. Subjective consciousness involves the ability to recognize yourself as seen by others, as an "analog I" which is internalized and placed into the space of the imagination, and which enables you to vault through time. [\[note 9\]](#)

And, if not from parents, how is such subjective consciousness learned? It is also learned from meeting strangers (not friends and familiar faces), an experience which forces upon you the idea that others see you, and thus suggests a narratized space in the mind where you can see yourself being looked at by

others. This reflected "analog I" becomes the first spark to light up the enormity of possible analogical mind-spaces which compose subjective consciousness.

Subjective consciousness can be learned quickly. The same Inca army which, on November 16, 1532, walked into the trap set by 110 Spanish soldiers and lost 8000 men because there was no Divine Guidance on how to respond to the novelty of metal-clad men on horses, became engaged in guerilla warfare and laid ambushes for the Spanish within months after the death of the Emperor. [\[note 10\]](#)

Jaynes claims that in the Middle East subjective consciousness didn't develop until after 1500 BC. In the immediate 2000-year period after the "Era of the Gods," which had still looked with certainty towards the beginnings, subjective consciousness simply was not needed. As long as nothing changed, life was predictable and safe. It took a number of worldwide catastrophes, which Jaynes does not address and is not even aware of, to force a change.

According to Jaynes, the Middle East started to wake up to consciousness with the arrival of "strangers." For Mesopotamia the strangers are the Indo-European invaders from the steppes of Russia and from India and Persia -- the Hittites (1600 to 1200 BC), who settled in Anatolia, but especially the later Medes and Persian invaders of Assyria in 500 BC, followed by Alexander's conquest of Persia somewhat later. Many of the Greeks, in fact, had already passed the consciousness horizon with their wide trade contacts with other peoples, and their near-wholesale rejection of the authority of kings. In contrast, Sparta, a Greek state which remained a kingdom through the Classical era, never produced anything of note except mindless warriors. [\[note 11\]](#)

Their constitution has stood them well for 400 years.

-- concerning Sparta, paraphrased from Herodotus, *The Histories* (circa 400 BC)

We also have to wonder at the *myths* and *legends* which have come down to us, since the lack of subjective consciousness precludes detailed memories. We can all verify this for ourselves, for we remember little or nothing from the first few years of life -- when we lack language -- and little from before the age of seven or eight -- when we lack the imagination to embroider remembered experiences, unless these were outstanding.

This suggests that mankind would not be able to recall its early history except for unusual experiences, and further might suggest that the *myths* and *legends* are fabrications of a later age. But, just as we remember some events from childhood if they are retold to us (or to ourselves), so humans would also have been able to recall stupendous past events if these were retold or replayed.

Retold as *myths* from generation to generation and acted out in ceremonies, these past events would have become concrete tribal memories. The accuracy of the retelling would then have been carefully protected. Note how small children will correct you if you diverge from the telling (or reading) of a story that they already know. Ancient festivals reenacted the events, preserved the memories, and, at the same time, fleshed out the stories to fill those memories with details. [\[note 12\]](#)

The stories ("myths" to us) and festivals spoke of the deeds of the Gods, copied their actions, and illustrated their appearance. Mexicans today still play a football game with a flaming ball called "Purepucha," recreating the creation events described in Michoacan myths. Through this dramatization everything displayed in the heavens becomes part of the earthly domain and localizes Gods to specific temples and cities. When mythologists today suggest that the Gods of mythology are only human heroes elevated to godly status, they have it backwards. We are seeing the celestial Gods made human. Which is also exactly how most of mythology reads today. [\[note 13\]](#)

Bicameral Kingdoms

The adoption of subjective consciousness seen in the Middle East beginning after 1500 BC is also accomplished in India and China at about the same time, and likely due to similar causes. Did anything like it happen in the Americas before AD 1500? The problem with finding an answer to that question is that we only know the story from the invaders.

On the one hand, for Mesoamerica, we have a record of the dialog between Aztec philosophers of the Valley of Mexico and Spanish theologians, recorded by the 16th-century historian Sahagún, which certainly attests to a well-developed subjective consciousness. These theological discussions are only now being published. [\[note 14\]](#)

Jaynes noted the striking similarities between the Middle East of 2000 or 1500 BC and the Incas of South America of AD 1500. The parallels between the Inca

emperors of AD 1500 and the pharaohs of third millennium BC Egypt are astounding, despite a separation of 4000 years. For the Inca emperor, as for the pharaoh, the purpose of life was reunion with the Gods. When the Spanish threaten one of the Inca cities, the Incas flee, leaving behind their gold, belongings, and food, taking only the mummies of their past god-kings to hide them in the mountains. We see the same in Egypt where the priests frequently remove mummies and hide them elsewhere when threatened by grave robbers at times of unrest.

Julian Jaynes proposes a generalized model of theocratic city-states and empires, and calls these civilizations "bicameral kingdoms." "Bicameral" refers to the separation of volition and consciousness in the speech centers of the brain. The start of any human activity is initiated almost exclusively by the right rear brain. This area of the brain is also responsible for generating speech which was not consciously thought out beforehand. Because of this, the right brain seems to be the location of the will. [\[note 15\]](#)

Consciousness, on the other hand, is located almost entirely in the left rear brain, as are also the ability to understand the speech of others and the ability to produce grammatically correct responses. The left brain is not aware of the right. This is, in fact, extensible to all right cerebral activities, most notably to mental dysfunctions. Oliver Sacks details this in case studies, in *The Man who Mistook his Wife for his Hat* (1970). We live in our consciousness, unaware of the input from the right hemisphere.

Bicameral kingdoms have a number of features in common, including the following.

First, there was either a city God, with the city and surrounding area operated as a theocracy, or a king, who was held to be the God or the Son of the God and was revered as such, even after his death. Theocracies included Sumer and, later, Akkad (in fact, all Mesopotamia remained as theocracies up to Persian times), India, China, and all of Mesoamerica. Societies under the direct rule of God or the Son of God included Egypt, Japan, and the Inca empire.

Second, the dead in these societies were considered alive in some way, and in need of material goods, especially foods, to accompany them in their graves. This practice actually extends far back into more remote antiquity, but becomes obsessive with the bicameral kingdoms. The new kingdoms initially buried their kings complete with their retinue. This practice seldom lasted more than a few generations in Egypt, but continued for 700 years under the Shang dynasty of

China (and was only prohibited by the Chou after circa 1000 BC). The 200-year-old Inca kingdom still practiced it in AD 1532 when the Spanish arrived. In bicameral kingdoms throughout the world, people (and certainly the elite) were believed to become Gods on their death. The enormous ceremonial center of Teotihuacan in Mexico (200 BC to AD 700), at one time supporting 200,000 inhabitants, was known as "the Place Where Men Become Gods." [\[note 16\]](#)

Third, the kingdoms of the "God on Earth" were jealous of any competing Gods, including those which had come before, and would destroy all signs of the preceding Gods, just as the cities of Sumer and Akkad would readily attack their contemporaries and haul off the God statues from the temples of nearby cities. The destruction of all previous records by edict of the Emperor of China in 213 BC is an example. The Aztecs destroyed all the manuscripts of their predecessors in the Valley of Mexico shortly after AD 1400. However *subjectively conscious* we may proudly think ourselves to be, it should be noted that the priests who followed the Spanish invaders into the Yucatan in the following century burned all the books of the Maya.

Fourth, the citizens were incapable of deceit, or more fundamentally, incapable of imagining the deceit of others. Not that these people could not lie or steal, but they were incapable of mentally "narratizing" a complex series of deceptive actions either by others or by themselves. This is vividly illustrated with the Inca empire, which had subdued half the South American continent, only to fall to the deceit of a handful of Spanish soldiers.

As a corollary it should also be noted that these people had no morals -- there was no such thing as good or bad. Actions were ordered and the humans responded like robots. The heroes of the *Iliad* were motivated by glory and shame, without regard for their own life, as were the Spartans who held off the Persian army at Thermopylae in 480 BC. In the vacuum left by the departure of the Gods, religion had substituted prescribed duties for individual judgment and assumed the absolutist attitudes understood as the prerogative of the earlier Gods. What is absolutely astounding is that these attitudes lasted over 4500 years -- as in the case of the Incas, for example.

What we have in these civilizations are people desperately holding on to the past. They considered themselves "slaves of the Gods," only now it was the local God in residence at each temple who needed to be housed, fed, and adorned. Everyone was employed in the service of the Gods, and surplus produce and products from the countryside surrounding a temple were collected (as a tax) for

the upkeep of the temple God, for redistribution to temple craftsmen, and for long-distance trade for building materials and more exotic needs. All humans were as deeply invested in their assigned tasks as the worker bees of a beehive. [\[note 17\]](#)

Population explosions are certainly the mark of each of these empires, including those which did not appear until long after the departure of the Gods, and Jaynes proposes that the elements of the bicameral kingdoms arise out of the need to control these large populations. But I question this. There is ample evidence that these kingdoms were voluntary societies where massive public works, whether digging irrigation canals or monumental building construction, were accomplished without coercion. This last becomes obvious with a closer look at the histories of Maya ceremonial centers. These were built with volunteer labor which depended only on the citizens' confidence in the leaders' connection with the spirit world. [\[note 18\]](#)

Jaynes suggests that these early civilizations were pre-conscious -- that is, not subjectively conscious. He suggests societies in which control was effected through auditory commands from the "Gods" -- actually the remembered admonitions of the governing class. This kept everyone to their task, and kept all things in order. Jaynes's use of "hearing the commands of the Gods" is a shorthand for the admonishing voice (which we still hear today) generated by the right hemisphere of the brain. In essence, these people, and perhaps especially the ruling class, were hallucinating. This description has turned some people away from a careful consideration of Jaynes's theories even though it is an accepted fact that the speech center of the right hemisphere acts as a separate but unconscious entity. [\[note 19\]](#)

But pre-subjective people are entirely functional humans. They can learn anything, including any skill, reading, and mathematics, they have the same sense of humor as the rest of us, they experience and express emotions, and they can converse with others in intricate details. It is difficult to distinguish bicameral humans from subjectively conscious humans. You will find yourself persuaded by each of the long soliloquies of the war chiefs of the *Iliad* when they meet in council -- yet no one among them takes action without receiving a command from a God. Bicameral humans seem normal. However, they rely heavily on the learned admonitions of parents and authority figures (blurting things out without any forethought, invariably in the context of "ought" or "should") and have great difficulty with novel situations. New situations require the ability to imagine a number of alternative actions which might be taken and

then to make a selection based on the imagined results. A pre-conscious human does not have the ability to imagine the thinking of others, especially reflectively; that is, how others might imagine them as thinking.

The Flood of Noah

There is a disturbance in 2349 BC, 800 years after the flood of 3147 BC. There are changes in climate, noted by many researchers, perhaps to a limited extent in the Middle East, but apparently also in China. This is followed about 150 years later by an extended period of drought and dust storms, starting in 2193 BC. From the interval of 156 years between these two climatic events, we would conclude that Earth was four times involved in an encounter with Venus, on a cycle of 52-year intervals. The interval of 52 years between events becomes a clear hallmark of disturbances by Venus and both 52-year and 104-year intervals between certain events are remembered by other nations at a later date. The 52-year cycle is assured, even for remote antiquity and even though the Earth's orbit would be different. See Appendix B, "The Celestial Mechanics," for how the interval can be derived for various periods in the past. [\[note 20\]](#)

I would suggest, as others have also, that the planet Venus was the agent of the disturbances in 2349 and 2193 BC. In fact, we can be certain that Venus appeared a total of four times during this period. The first appearance of 2349 BC was absolutely spectacular and, at the same time, so psychologically disturbing to people the world over that this single event is frequently recorded as the very start of history -- often as a retelling of the flood of 3147 BC (as in the "flood of Noah"), coupled with the first appearance of the Moon. The most frightening aspect of 2349 BC was what looked like the collapse of the ocean in the south sky, the Absu. It was thought to have fallen onto the Earth like a flood, for the commotion in the sky was accompanied by endless rains and storms. The other disturbance was that the sky turned blood red. [\[note 21\]](#)

Claude Schaeffer, in *Stratigraphie comparée et chronologie de l'Asie occidentale* (1948), wrote:

"The great perturbations which left their traces in the stratigraphy of the principal sites of the Bronze Age of Western Asia are six in number. The oldest among them shook, between 2400 and 2300, all of the land extending from the Caucasus in the north down to the valley of the Nile, where it became one of the causes, if not the principal cause, of the fall of the Egyptian Old Kingdom after the death of Pepi II."

Schaeffer's estimate brackets 2349 BC, the first strike by Venus. The "traces" of 2400 BC to 2300 BC extended over a very wide area in the Middle East, from Persia to Greece, and included "violent earthquakes and tidal waves, and other signs of a natural disaster" (paraphrased by Velikovsky). But it becomes obvious that what we are seeing is a swath of destruction only extending over part of Northern Iran, Anatolia, part of the Levant, and Greece, with little or no evidence in Mesopotamia or Egypt (despite what Schaeffer wrote about "the Nile valley").

It would seem that the event of this era caused an expanding circle of destruction throughout South Central Asia (the location of Indian civilization), the Eastern Mediterranean, throughout Southern Europe and parts of North Africa, plus China. Other areas we are not aware of, because they were not built up with cities. There is little indication that the seismic shock crossed the Atlantic to make contact with America. Worldwide, the destruction in this instance seems to have been limited to earthquakes.

At the first instant the crust of the Earth would have been subjected to a severe compressive force due to the electric repulsion between Earth and Venus -- but only for a period of a half hour or less. The compressive forces would have been followed by lifting forces as a result of an induced charge of opposite polarity. (More on the sequence in Appendix B, "The Celestial Mechanics.") Areas adjacent to the "impact area" would have experienced an uplift initially. Areas outside of the region of the initial "contact" would have been subjected to lateral seismic forces (earthquakes) as shock waves spread around the Earth.

The destruction described by Schaeffer apparently pertains mostly to the end of this period, 2193 BC, when agriculture fails worldwide.

There seems to be no evidence of large-scale fires at the earlier date of 2349 BC. The damages noted by Schaeffer (he only presents information for the region west of the Himalayas) were due to shock waves resulting from the initial compressive force to the part of the Earth that faced Venus, followed by somewhat later lifting forces. The earthquakes would have been astounding.

The contact with the plasmasphere of Venus would have resulted in an attempted charge equalization through the delivery of lightning bolts. At a closer distance between the two planets, such massive lightning strikes would have been capable of melting mountain tops, ripping out and incinerating forests, and lifting boulders and hilltops into the vortex of a fiery hurricane which would have moved west at over 500 miles per hour (800 km per hr), which is the linear

speed of rotation of Earth at 30 to 40 degrees latitude. Traveling lightning bolts would have incinerated forests and grasslands, resulting in placing nanometer carbon dust in the stratosphere, with a resulting shadow extending over all of the Earth for centuries.

But in 2349 BC, there was nothing like that, as far as we can tell. This was not a traveling lightning strike, for there was no close electric connection to Venus. The planet was 20,000,000 miles (32,000,000 km) away (probably 17.5 million at a minimum).

In 2349 BC there was no follow-up lightning strike. This was an unusual condition and unexpected, but kept the Earth from experiencing the massive forest fires resulting from a traveling arc, and the darkness which could have followed the fires for hundreds of years. But, as mythological sources in India, Canaan, Mesoamerica, and China have it, the charge equalization consisted of a plasmoid arriving from 20,000,000 miles away. The event of 2349 BC did not result in a darkening of the skies as would be indicated by a failure of agriculture worldwide. We would also have to assume that the plasmoid dissipated at the Van Allen Belts or the ionosphere. The charge which held the dust of the Absu in suspension may have saved the Earth from being incinerated.

In this case, where the plasmoids had to travel a very large distance, the charge equalization (the thunderbolt) would have arrived late. The first plasmoid from Venus took six hours to arrive (in my estimate). See the chapter "The Day of the Dead," for details of travel time and speed. Also, from descriptions we have, it looks as if the initial gigantic plasmoid was followed by 9 smaller ones. This is as expected for such a very remote interaction.

However, there was of course a "flood" thought to be associated with this electric contact, for it looked as if the Absu fell and drained onto the Earth -- although actually discharging to the upper atmosphere and causing severe rain storms. The disappearance of the "sea" of the Absu would have been enough to convince everyone of where the rain and storm water came from. The event was understood everywhere as a "flood" from the sky -- in the Eastern Mediterranean, in China, in the Americas.

From the damage done in the Eastern Mediterranean north of about 33 degrees latitude we know that the initial repulsive blow from Venus was delivered north of the equator, and the Earth's rotational axis would have undergone a gyroscopic reaction as the northern hemisphere was shoved away from the Sun. Thus the path of potential destruction (if an arc had been delivered) would have

traveled at an angle inclined to the equator, so that Western North Africa could have fallen on the path. By the time Central America faced Venus the gyroscopic reaction would have started to carry the equator back "down" to where it belonged, so that the remaining path of destruction angled up again. I'll develop more details in the next chapter.

The second appearance of Venus in 2297 BC and the third in 2245 BC seem to have left no record that we are aware of. Yet it is certain that these happened. People took no note in myths and histories because the results were not spectacular or religiously significant. The last event in 2193 BC will be discussed separately below. Again, as with the previous two, the contact in 2193 BC was not noted in any records. But in this case we have substantial secondary data available.

The first event, of 2349 BC, marks the traditional Noachian flood. It involved an electric contact with Venus which increased the orbit of the Earth, bringing Earth close to the established location of the Moon. It also resulted in a sudden dispersal of the equatorial rings of the Earth, accompanied by storms, rains, and hurricanes, which became known in the Bible as the "flood of Noah," or, as the Sumerians and Akkadians called it, the "flood after the flood." [\[note 22\]](#)

The story of Noah and the flood is well known from the Bible. But, as I pointed out in a previous chapter, flood stories are ubiquitous. People in all regions of the world have flood stories. Most of these stories show no signs of having been borrowed from other people, yet they all involve the same elements -- a worldwide inundation, survival of a few people with their animals in an ark, a boat, or a canoe, and anchorage at a mountain while waiting for the waters to subside.

When the Sumerian *Epic of Gilgamesh* became available in translation in Europe in the 19th century, it astounded everyone -- for it contained a clear description of the events of the flood of Noah, including the ark, the animals, and sending out birds to test for dry land. However, both the flood of Gilgamesh and the flood of Noah are the conflation of the Black Sea flood of 5600 BC and the worldwide flood in 3147 BC.

In 5600 BC, Noah didn't build an ark. As a Black Sea farmer and fisherman, he had a boat. He didn't collect all the animals in the world, only his family and farm animals, and as much seed and fodder as possible. He didn't moor at a mountain in Northern Iran, but landed at the river Halys or rounded the Anatolian plateau to land in the depression between the Pontic Mountains

(bordering the Black Sea in the south) and the Caucasus Mountains (to the east of the Black Sea). From there, his "survival story" spread south into Iran and Anatolia, eventually to reach the plains of Mesopotamia and the Levant. After another flood and the passage of nearly two thousand years, the ark -- seen by all everywhere -- was the Sun-lit crescent on Jupiter, and the mountaintop of the anchorage was the lower plasma tail of Jupiter, decked in green.

To the Hebrew priests who compiled the books of the Bible after 536 BC, the flood was an actual event experienced in 2349 BC. It was, for them, the only flood ever and the centerpoint of their people's history. However, the date, although widely accepted among Christians since Bible chronologies were established in the 17th century (Ussher and Newton), is backed up by very little physical evidence. (I will return to this in the next chapter.) Some think it may have been a local event. We are not even certain where in the Middle East Noah was to be found in 2400 BC. It might have been Anatolia, Mesopotamia, or the Levant, or even Arabia (with some scholars suggesting India).

The chronology of Mesopotamia (Akkadia) is only firmly established after the putative "flood of Noah," but there is no mention of a flood. The only strong coincidence is from China, where in 200 BC, long before Christian influences, the catastrophic flooding of China was dated to 2350 BC. The people of Mesoamerica also date one of the "creations of the world" to this time. I will return to this also in a later chapter. [\[note 23\]](#)

The Jewish world history (the Bible) was compiled sometime after 536 BC, when Cyrus allowed the Jews to leave their Babylonian captivity and return to their homeland with orders to rebuild the temple of their God. Cyrus financed the rebuilding and returned to them the "vessels of the temple." We could presume that their books and records were returned also. The earliest of these books, Genesis, which includes the story of the flood of Noah, was held by tradition to have been written by Moses a thousand years earlier, after 1490 BC.

The priests subsequently edited and collated their books into a history of the world -- a creation epic. The editors must certainly have been familiar with the thousand-year-old Babylonian *Enuma Elish* creation epic, which at that time constituted the only other recorded history of the world from creation onward. (The *Enuma Elish* retells the flood stories found in earlier Sumerian epics.) But the *Enuma Elish* dealt with multiple Gods, and the Hebrews were monotheistic. I would also assume they knew the epic literature of Akkad and the *King List* of Sumer. We would have to assume that the Bible editors knew that the list of the

"Kings before the Flood" was recorded in days, not years. And it would have been known by the editors that in a previous era the year was shorter (having all but witnessed the change in the year's length which happened in 747 BC), and that it was even shorter in earlier times -- or, in another way of understanding, that people lived longer lives. Their sacred book would certainly conform to these oldest known histories of the world, but would be populated with their own patriarchs and informed by their own records.

It is generally assumed that the Bible is derived from Mesopotamian records and legends. I do not think this is likely. I think it is a parallel record, perhaps partially oral, which was brought into conformity to known records at this late date. The flood of Noah is, in fact, only one of the world's more than 500 parallel flood stories. It is also sufficiently different from the Mesopotamian flood legend to be considered as standing on its own. [\[note 24\]](#)

The history of the world as presented in the Bible is, at any rate, unique. It presents a record of creation which parallels the Mesopotamian creation epics (and those of many other people) but conceives of a God outside of the visible domain of this world. This last is the result of a change in humanity's point of view on the Gods seen throughout the world after 650 or 600 BC, which will be discussed in a later chapter.

The Bible thus dispenses with the multiplicity of Gods of the other nearby cultures and remains consistently monotheistic. In itself, this is not unique. The Chinese were monotheistic, at least to the point of acknowledging a single supreme God, as were the Persians. But the book of Genesis, for example, takes the signs in the sky, which the other cultures had equated to distinct Gods, and treats them as humans. One description especially, the creation of Eve, stands out, as follows:

Adam is the lonely globe of Saturn in the sky. God -- the God outside of creation -- takes pity on him and creates a woman for him by extracting a rib and subsequently healing the wound. This is clearly the image of the expulsion of Venus from the side of Saturn, still connected with a rib-like plasma appendage. The image was common to the experience of all the tribes of the Eastern Mediterranean, but the interpretation by Moses was unique.

The Bible gives no date for the flood of Noah, but notes other events after the flood which can be matched to known dates. A correlation of Biblical events to known dates was attempted by James Bishop Ussher in AD 1650 and still stands

as a classic work. Ussher dates the start of the "Universal Flood of Noah" at 2349 BC and the end at 2348 BC. [\[note 25\]](#)

The "flood of Noah" happened as the Earth's orbit increased and Earth joined the Moon at the Moon's established orbit. The result was that the Moon revolves around the Earth in a plane tilted up at about 5 degrees (as seen from Earth) -- not on the Earth's equator, but otherwise at the same average distance from the Sun. I suspect (from the records presented as sculptures at Maya Palenque) that the Moon did not fall into a regular orbit until 2283 BC, some 50 years after it first appeared. The Chinese *Shu King* claims it took 30 years.

The appearance of the Moon probably marks the "sign in the heavens" after the flood of the Bible. It is the end of the "time before the Moon" noted by Aristotle and others in antiquity. "Sin" ("Moon") becomes popular as a personal name in Akkadian Mesopotamia after 2350 BC. Sargon of Akkad, who conquered Sumer shortly after "Noah's flood," appoints his daughter as priestess of the Moon god ("Nanna" in Sumerian) of the Sumerian city of Ur. His granddaughter held the same position.

A Second Strike

The event of 2349 BC is followed by another worldwide disturbance in 2193 BC (three times 52 years, 156 years later). Again Venus makes an electric contact with Earth, the fourth in this era. With this event climatic changes are recorded worldwide, with social upheavals and abandonment of settlements spanning two hundred years. With this second event the Old Kingdom in Egypt comes to a sudden end, not to recover for more than 185 years. [\[note 26\]](#)

At the same time the Mesopotamian empire of Akkad collapses. Sumer had been conquered by Sargon of Akkad in 2335 BC, part of an empire of conquest which stretched from Elam on the Persian gulf to the Mediterranean. But his dynasty's brief hold is lost in 2193, coincident with the second disturbance. The empire fails economically and the barbarian tribes of the Zagros mountains descend into the Akkadian plain. Even a hundred years later the land of Akkad laments:

*"The large fields and acres produced no grain
The flooded fields produced no fish
The watered gardens produced no honey and wine
The heavy clouds did not rain"*

-- City of Akkad, circa 2100 BC.

Some climatologists have assumed that Mesopotamia and Egypt lacked rains during this 200-year period following 2193 BC. But the laments from Akkad, quoted above, do not speak of a lack of water, but of a lack of growth. This speaks of a downturn in temperature and, most likely, a lack of sunlight. It is very similar to the darkness which will envelop the world 700 years later, after 1492 BC, when the Hebrews "walked in darkness" and Mesoamerican recollections claim that a generation of people grew up in darkness. An oceanic strike of an arc from Venus traveling partway around the world would not have produced a cloud cover lasting for years. But an arc traveling across the land of Earth would cause extensive fires. This is probably the most likely cause for the 200 years of darkness.

There is other data from this 156-year era. The endless reconstruction of Stonehenge is interrupted for 200 years after circa 2400 BC. Malta, with its temples and worship of the Fat Lady, is vacant after 2200 BC. Two hundred years of wind-blown dust and volcanic ash show up in the Eastern Mediterranean after 2200 BC. The Indus river fails to produce enough water for agriculture and the parallel Sarasvati river dries up. The Harappan culture along the Indus (of over 250 cities and villages) declines slowly and disappears by 1900 BC. The Indus river region (lower Pakistan) turns into a desert. China's culture nearly falters. European construction of grave barrows ends for the most part by circa 2000 BC. [\[note 27\]](#)

The strange specificity of the area of destruction in the Middle East has suggested an air blast to some researchers, perhaps a Tunguska-like meteoric event -- an exploding bolide arriving from space. But most likely the two disturbances of 2349 and 2193 BC, the flood of Noah, the later demise of the Old Kingdom of Egypt along with the collapse of Akkad, were caused by the electric interactions of Venus. The restricted path of destruction, the damage caused by fires (also localized), the tilting (gyroscopic swing) of the axis (which is recorded in legend in China and as history in Mesoamerica), and then the later blockage of sunlight for an extended period of time, are all the marks of an alignment with a large planet and its electric field interaction with Earth. I will offer some additional details in the next chapter.

The two disturbances were 156 years apart, three times 52 years. The period of 52 years will remain as the mark of Venus's interactions with Earth: an 800-year span where nothing significant happens, then two or more contacts at 52 year

intervals (or some variation of 52 years). In both 2349 BC and in 2193 BC the orbit of Earth changed. The year changed to 260 days in 2349 BC, and (I suspect) to 273 days in 2193 BC. [\[note 28\]](#)

After a few hundred years, Egypt will reorganize as the Middle Kingdom and start in again to build pyramids as grave markers and will do so for another thousand years, spreading ever further south along the Nile. Akkad and China also recover. The Harappan cultivation of the Indus valley is abandoned as its people move into the Ganges region.

In the next era, Mercury will become a prominent God while Venus will continue to lurk in the background. In the next chapter I will turn to some additional important considerations of the events surrounding the "flood of Noah."

Endnotes

Note 1 --

A similar condition with respect to the southern sky as a destination for the dead, occurs in the central Valley of Mexico, as related by the Spanish historian Sahagún in the 16th century AD, and quoted by Javier Urcid in *Zapotec Writing, Knowledge, Power, and Memory in Ancient Oaxaca* (2005). We have the following:

"And also they caused him [the deceased] to carry a little dog, a yellow one; they fixed about its neck a loose cotton cord. It was said that [the dog] bore [the dead one] across the place of the nine rivers in the land of the dead ... And when the four years had ended, thereupon [the dead one] went to the nine lands of the dead, [where] lay a broad river. There the dogs carried one across."

As I have already pointed out in previous chapters, the "nine rivers" are the Mesoamerican equivalent of the Duat, called the "House of Nine Bushes" in the *Chilam Balam*. The "broad river" is the ecliptic, which was noted as appearing about "2 or 3 degrees wide" in the early 19th century of the current era. In the 16th century AD the river of the ecliptic was still visible.

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Note 2 --

As I have pointed out earlier, for Jupiter to have looked the same diameter as the Moon, at the eventual location at 5.2 AU from the Sun, with the Earth at 1 AU from the Sun, the coma would have been nearly 3.5 million miles in diameter (using the tangent of 1/2 degree for the size of the Moon). The dark mode plasmasphere of Jupiter today is still 3.5 million miles wide (5.6 million km). A coma of this size would have encompassed the Earth if it had developed while Jupiter was still in the near part of the asteroid belt.

Because the asteroid belt provided multiple targets for plasma discharges, I do not think a large coma developed as Jupiter traveled to the end of the belt at a distance of about 4 AU from the Sun.

If Plutarch's Zarathustrain sources are correct, and Jupiter initially looked to be three times the diameter of the Moon, then when Jupiter first exited the last clumps of the asteroid belt at about 4.7 AU, the coma would at that time have had a diameter of 10 million miles (16 million km).

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Note 3 --

"Rounded like a hat" can also be read as "sharply pointed" or could mean "shaped." The 16th century AD *Chilam Balam* dealing with ancient celestial phenomena apparently copied from illustrated glyphic bark books of great antiquity. We are here encountering a verbal description of an image for which the physical basis had been lost to memory. The "pointed hat buttocks" is probably a reasonable description of a depiction of the coma extending from the bottom of Jupiter.

"Sitting on his mat," however, is normally considered as a metaphor for rulership.

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Note 4 --

City walls are not necessarily for defense. The first use of walls around compounds of buildings was probably to protect cattle or sheep from predators, like the "kraal" of 19th century Zulu villages, or as flood control. Lions roamed Persia well into Roman times, and would probably make excursions into the Mesopotamian lowlands for a kill.

But it must have become obvious before long that walls would also keep people from neighboring cities out. The walls around Jericho are a curious exception if seen as protection, as is the Jericho tower, since they were built much too early (6000 BC). It could be suggested that the tower was built to observe the southern ball plasmoid. In that case Jericho is no longer a cattle-trading town, but a religious center.

One might question the genesis of the planned cities arising in Mesopotamia and the Indus valley which seem to spring into being with no previous examples. The beginnings of the Harappan culture has not been dated, since earliest levels are below ground water. But I would suspect them to date to after 3000 or 2700 BC. This culture had examples of earlier cities -- in Iran and Baluchistan. The first cities in Southern Mesopotamia appear after 2700 BC, maybe earlier. They follow on earlier small villages and individual housing. Mesopotamian cities may have been derived from Iran, and certainly from the cities in Anatolia.

We should distinguish between villages and cities. Villages are a function of the availability of resources. If you live in a river valley where there is water, where you can plant, and surrounded by forests where you can hunt and cut lumber, it makes sense to settle a village near the water and farm land even if there are no more than a few families. People only live together when it makes sense to do so. Villages in forested Central Europe after 5600 BC are all located along river valleys.

Cities, on the other hand, are by and large based at a central temple, which soon become the centers for the manufacture of goods for trade. The temple compounds often precede the city, as for Uruk in Mesopotamia which is built adjacent to the earlier temple E-ana. Similarly in Egypt, and in Mesoamerica, it is the ceremonial centers which precede cities.

In Mesopotamia the cities were built by an immigrant people who had already lived in grouped houses (perhaps in Iran) for over a thousand years, or who may have come from Anatolia which boasts numerous cities much older than the Sumerian culture in Southern Mesopotamia. They moved into the flatlands of the Euphrates and Tigris because of the potential productivity (discovered earlier by local people). Much the same happens with the Indus valley Harappan civilization. These people had moved out from Baluchistan and probably also from the foothills near the source of the Indus and Ganges.

It looks like there was a sudden increase in population after 3100 BC in the agricultural centers of the world. As the climate became drier and colder, there

were mass migrations of people from lands where the archaeology suggests more primitive conditions for housing, but not with respect to agriculture and animal husbandry. When groups strike out to new lands they are organized and naturally would plan their "new" cities with some reasonable order.

Having lived elsewhere in cities which had grown in helter-skelter fashion, it can be understood why the new cities were carefully planned in a grid fashion, and, as for example in the Indus valley, which were built from the start with sewers and running water.

This is not a case of foragers suddenly settling down. The foragers were probably largely killed in 3147 BC when coastal regions and lowlands flooded. Even if people survived, the game probably did not. The survivors of the flood are to be found in mountainous regions and far inland away from seas, coasts, and low areas. The farmers who suddenly appear after 3100 all come from the slopes and foothills of mountains. The survivors are those who had already learned to plant in addition to "gathering." In the lowlands of India or Pakistan there is no evidence of a prior foraging (hunter/ gatherer) population before 3100 BC.

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Note 5 --

"... for nothing is older in human history than seeing the past as exemplary (the 'Golden Age'), the present as deficient, and then trying to restore conditions as they used to be. Few Egyptian Pharaohs came to the throne without undertaking to restore things 'as they were in the beginning.' That is, of course, the hallmark of the conservatism of traditional cultures. All traditional human societies justify their practices either by saying, 'that is the way things have always been,' or, if origins are in issue, by saying that the gods established things that way. Mythic accounts may or may not have been offered, briefly or elaborately, to explain how or why the gods did establish things in the proper way. Eventually the explanation becomes the thing itself, and the historical dimension is simply eliminated, as religions like Judaism, Christianity, and Islam directly present the founding commands of God in revelatory literature."

-- Kelley L. Ross, 1996 [\[http://www.friesian.com/conserv.htm\]](http://www.friesian.com/conserv.htm)

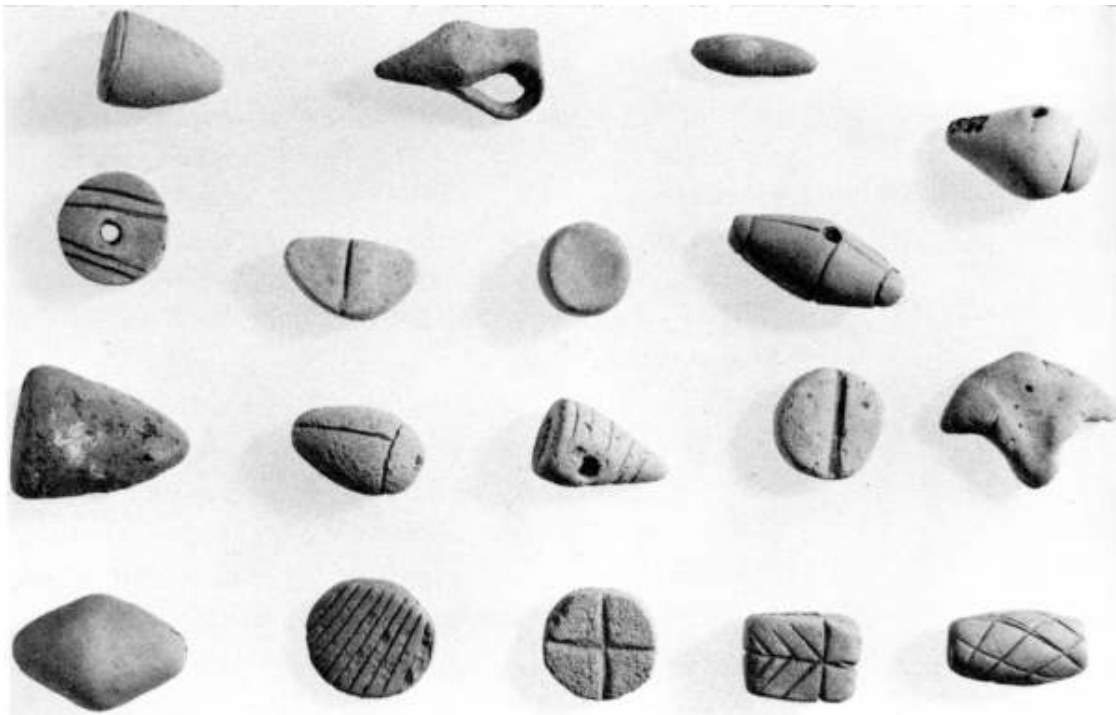
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Note 6 --

"The tokens were an entirely new medium for conveying information. Compared to the previous tallies, the conceptual leap was to endow each token shape, such as the cone, sphere, or disk, with a specific meaning. ... The token system was, in fact, the first code -- the earliest system of signs used for transmitting information."

-- Denise Schmandt-Besserat *Before Writing, From Counting to Cuneiform* (1992)

The use of ideograms or pictograms, pictures which stood for short nouns and eventually sounds, was in use from circa 3200 BC in Mesopotamia. Cuneiform is a more rapid "longhand" abbreviation of the "pictures." The cuneiform script eventually expanded to some 600 glyphs, representing short words or sounds, and was firmly established probably by circa 2800 BC in Mesopotamia. The use of pictograms, some identical to the original Mesopotamian, continued in Egypt, but were soon reduced to the sounds of syllables.



[Image: Mesopotamian tokens. After Schmandt-Besserat.]

It took 1500 years before an alphabetical script was introduced. Perhaps the reason the cuneiform never moved directly to an alphabet (the cuneiform was abandoned) is because the concept of an alphabet requires something entirely different. It requires sounds -- not words -- to be mapped to a flat space. This space, where sounds have a one-to-one (analogical) relationship to marks, has to

be imagined and recognized. The alphabet probably derived from the sounds of Egyptian hieroglyphs.

Egypt, China, and Mesoamerica all developed mixtures of phoneme-based syllabaries, but none of them developed alphabets. The syllabary scripts of China and Mesoamerica had the advantage of being able to be read over a wide range of languages, since sounds were not strictly represented. The scripts were like magic.

On the other hand, it is not at all obvious that speech consists of finite units like consonants and vowels, as is easily demonstrated from the first writing efforts of the young. The leap to representing individual sounds first shows in the prefixes used with the signs of cuneiform, as it does in the word-sound signs added to both the Maya glyphs and the Chinese script -- but they did not move beyond the specific functional addition made to the syllabaries.

The first alphabet was a vowel-less set of signs introduced in Canaan circa 1500 BC, generally attributed to the Phoenicians, but probably based on the Egyptian demotic (longhand) which was already reduced to assigning sounds to glyphs. Once demonstrated, it spread like wildfire. It was quickly adopted by traders of the Levant (and by Moses). The Greeks added vowels needed for their vocalization in about 700 BC. Alphabets eventually spread even to barbarian Northern Europe where one form, known as the "Futhorc," is obviously based on Roman letters. But the ciphers of many other European barbarian alphabets show no relationship to known letter forms at all, demonstrating that it was the idea that was transmitted rather than the letters.

See especially H. W. F. Saggs, *Civilization before Greece and Rome* (1989), who lucidly describes writing (plus other topics) in Egypt, Mesopotamia, and Canaan.

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Note 7 --

"Ideas such as objectified conceptions of a mind, or even the notion of something spiritual being manifested, are of much later development. It is generally agreed that the ancient Egyptian language, like the Sumerian, was concrete from first to last. To maintain that it is expressing abstract thoughts would seem to me an intrusion of the modern idea that men have always been the same."

-- Julian Jaynes *The Origins of Consciousness in the Breakdown of the Bicameral Mind* (1976)

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Note 8 --

There are disadvantages also. We are so easily convinced of the validity of our metaphorical thinking, that we end up fooling ourselves.

*"It is one of the lessons of logic, dutifully repeated in its textbooks, that 'analogy is not proof.' But to humans of all times, analogy **must be** proof. The most marvelous sense of power, intellectually and behaviorally, comes from the association of the tiniest events and observations with the nature and conduct of the great universe."*

-- Alfred de Grazia, *Homo Schizo, Human and Cultural Hologenesis* (1983?)

Another failing of speakers of Indo-European languages, and perhaps some other cultures who are similarly inclined, is to jump to conclusions about causal connections simply because two events follow each other in time.

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Note 9 --

See the chapter "Language and Causality," where this is more fully developed.

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Note 10 --

I would suspect that the delay in subjective consciousness in this instance might largely be due to the limited exposure to new people. The Eastern Mediterranean, in contrast, was constantly overrun by foreign tribes seeking better environments, especially after both 1500 BC and 800 BC. The same was true of China.

Consciousness also insinuated itself for totally different reasons, dating from after 2000 BC (Jaynes suggests), as writing came into greater use. Trade would have been an immense influence (meeting different people), as would the increased use of scripts for state administration. Jaynes, in fact, claims that the use of the scripts of the "talking tablets" displaced the voice of a person to an

object, driving spoken commands into silence, and requiring the reader to listen to the tablet, rather than imagining a person dictating the text. The communications of Hammurabi (circa 1700 BC) to his distant government officials were addressed not to them, but to the tablets he wrote (in his own hand!)

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Note 11 --

I wonder how much of a lack of *subjective consciousness* existed among the world's foraging populations, or if it had already developed. Hunters are required to be smarter than farmers. They need to previsualize their quarry, understand their habits, walk their territory, and plot a catch. That requires a lot more mental space than the rote repetition of wielding a hoe. This would suggest, in turn, that the God-obsessed farming populations were more prone to remain pre-conscious. However, in a previous chapter I have applied a pre-conscious condition to the Western European Cro-Magnon cave painters (and hunters) as a reasonable explanation of why nothing changed in their depiction technique for 30,000 years.

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Note 12 --

We do remember the physical spaces that we learn to navigate as a child, the people we deal with, and thousands of other details which become assigned to near-automatic behavior. This is mainly a right brain function.

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Note 13 --

"This process by which the early gods reappear in later legends under human or semihuman form ... can be observed in many parts of the world, notably in India and Scandinavia. There is no question of historical characters being invested with divinity. A detailed examination of all ancient religions, not to mention new ones, ... shows that the Gods were originally more abstract and general forces which gradually degenerated and became anthropomorphic or zoomorphic"

-- Jean Markale *The Celts, Uncovering the Mythic and Historic Origins of Western Culture* (1978)

I would argue against the "abstract and general forces" and insist that the gods were instantly recognized as giant supernatural beings (and thus in a manner anthropomorphized), and only assumed human dimensions at a later date after they disappeared from view.

It seems likely that the predilection of our ancestors (and "primitives") for colorful decorations of bright bird feathers and oversized or outlandish headdresses reflects the colorful auroral plasma displays surrounding Saturn when he stood above the pole, as well as the plume-like headgear worn by planets in glow mode plasma displays. The same would be true of the crowns of kings and the halos of saints.

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Note 14 --

The note about Sahagún is from Charles Mann, *1491, New Revelations of the Americas before Columbus* (2006). Mann uses this to demonstrate that the Aztec were hardly "savages." The Aztec philosophers, by the way, seem to have bested the Spanish in the discussions. Admittedly, a complex theology is not sufficient to suggest subjective consciousness, for we see the same in Egypt of the Old Kingdom and Middle Kingdom before 1500 BC. The status of consciousness ought to be sought in the accommodation of the Aztec to the religious environment of the Central Mexican region, which they invaded 200 years before the Spanish arrived, and their subsequent relationship to the Spanish. This should be considered, despite the fact that their relationship to the Gods was one of control (which reflected also in their relationship with other tribes) rather than the Mediterranean concept of having to placate the Gods.

Linda Schele and David Freidel, in *Maya Cosmos* (1993) attribute the collapse of the Maya in AD 900 to internecine warfare, not to a religious collapse (which would be an index of the lack of subjective consciousness), as Jaynes suggested 30 years ago, based on limited information available to Jaynes at that time. Similarly the destruction of ceremonial sites in the Valley of Mexico was not always accomplished for religious reasons. Many centers were destroyed by marauding invaders.

However, it is important to emphasize that pre-conscious people are almost indistinguishable from subjectively conscious people, and the only real hint pointing to a lack of subjective consciousness is the inability to deal with new situations. This was not true of the Maya and the Mexicans at the time of the Spanish invasion, but I will go with Jaynes's opinion in the case of the Inca

empire, although this is influenced by my lack of knowledge of the specifics of the change in South America from indigenous religions to Christianity. The Maya and Mexico, on the other hand, seem to have integrated local traditions (or, more importantly, their philosophy) and Christianity very rapidly.

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Note 15 --

See Julian Jaynes, *The Origin of Consciousness in the Breakdown of the Bicameral Mind* (1976), for additional details.

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Note 16 --

The belief by Mesoamerican cultures in an afterlife at the time of the invasion is now disputed. See Charles Mann, *1491, New Revelations of the Americas before Columbus* (2006). The ceremonial centers serviced the elite and the states. Instead of benefiting the population by supplying promises of an afterlife, the benefit was reaped in earthly terms -- good harvests, long life, many children -- through the intervention with the Gods by the ceremonial chiefs. When these were not forthcoming, the population would abandon the ceremonial centers at the drop of a hat.

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Note 17 --

It is amazing that in Mesopotamia kingship and trade remained secular in most respects. The Kings were only infrequently promoted to the status of Gods, unlike Egypt, and the relationship of traders to the temple enterprises is not clear at all. The trade also supplied the elite with luxury materials. This condition arose from the fact that Sumer has no natural resources outside of agricultural products.

We have no clear indication of "temple economies" in China, since there are no accounting records on clay as in Mesopotamia or testimonials carved in stone as in Egypt. But there was an economy based on supplying the elite of the very large imperial court, the provincial governors and their staff, as well as the armies, with food and luxury goods.

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Note 18 --

The Maya never supported standing armies, or a police force.

I disagree with Jaynes's contention that "authority" was needed to "control" groups of people through leadership, especially large groups. A look at the Plains Indians shows this is not so. See, for instance, Robert Utley, *The Lance and the Shield, The life and Times of Sitting Bull* (1993) or see Linda Schele and David Freidel, *A Forest of Kings* (1990) on the Maya. The need for authority is necessary to gregarious species, like us humans. But it need not be a matter of imposed control, and all indications from graves and houses before 3100 BC in Egypt and the Near East is that there was no leadership elite.

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Note 19 --

Jaynes admits that perhaps people whose role was closest to the upper levels of leadership would be most under the influence of the hallucinating voices of the Gods.

It should be remembered that the concept of "free will" does not develop philosophically until the Classical Age of Greece and the concept of "chance" remains forbidden well past the Middle Ages of Europe.

Even today we see, as an example, that "moral development" -- a term designating the ability to make independent ethical judgments -- correlates inversely with religiosity, a belief in the importance of law, and in general with conservative beliefs. See Lee Wilkins *The Moral Media: How Journalists Reason About Ethics* (2005).

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Note 20 --

Among the conditions for a plasma contact between Venus and Earth is the geometry of a transit of the Sun. Today the transits of Venus (when it moves across the face of the Sun) happen 4 times on a cycle of 243 years, in two sets of two transits, which are 8 years apart. The interval between the sets of pairs alternates between 121.5 and 105.5 years.

The use of a 52-year period (and the date of 2193 BC) is from Timo Niroma (at <http://personal.eunet.fi/pp/tilmari/>), which fits well with a number of other suppositions. It is perhaps a lucky guess, but it works out well.

As I will show in Appendix B, "Celestial Mechanics," the 52-year period was in effect at this time, but not at a later date, even though invoked by Velikovsky and by some other catastrophists for other time periods. This certainty about a 52-year interval is largely derived from the continued observance in Mesoamerica of 52-year intervals, but these intervals are based on the Maya calendar system based on "Tun" years, not solar years.

Book 10 of the Maya *Chilam Balam* infers seven approaches by Venus since 3147 BC. I can easily locate four of these to 2349 BC, 1492 BC, 1440 BC, and an appearance which looked like a "close approach" in 776 BC. Considering the 156-year span of time between the "flood of Noah" in 2349 BC and the 2193 BC agricultural failure of Akkad, Egypt, China, and probably Harappa, the remaining three approaches by Venus could then be placed after 2349 BC at 2297, 2245, and 2193 BC with some confidence.

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Note 21 --

Venus would seem to approach Earth every 52 years during this period, but was unlikely to have looked all that large except for its coma. For an electric interaction Venus would have to line up with the Sun on the day side of Earth, but likely never got closer than 10,000,000 or 20,000,000 miles. I'll provide estimates in the next chapter.

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Note 22 --

More and more climatological and archaeological data has come forward over the years to establish a flood event, or some catastrophe, circa 2350 BC, as global in scope. This is influenced by Western Christian traditions, which hold to "the flood" as dated by Ussher to 2349 BC. The climatological decline after 2200 BC (2193 BC) is actually much better established, and the greater political consequences of this later event can be verified from Egyptian and Mesopotamian sources.

"... Most sites in Greece (circa 260), Anatolia (circa 350), the Levant (circa 200), Mesopotamia (circa 30), the Indian subcontinent (circa 230), China (circa 20), Persia/Afghanistan (circa 50), Iberia (circa 70) which collapsed at around 2200 +/-200 BC, exhibit unambiguous signs of natural calamities and/or rapid abandonment. The proxy data detected in the marine, terrestrial, biological and archaeological records point to sudden

ecological, climatic and social upheavals which appear to coincide with simultaneous sea- and lake-level changes, increased levels of seismic activity and widespread flood/tsunami disasters. The main problem in interconnecting this vast amount of data chronologically is the application of incoherent and imprecise dating methods in different areas of geological and climatological research."

-- Benny Peiser, *SIS Cambridge Conference* (1997).

Peiser is hedging his bets here to cover both 2349 BC and 2193 BC by suggesting a range of from 2400 to 2000 BC. A few others have been more courageous and defined separate events for 2349 BC (the date is from Ussher) and the event 156 years later which resulted in a 200-year worldwide hiatus in agricultural production and abandonment of sites, apparently due to a notable lack of light.

We don't really know what happened, but the clues point to an alignment with Venus. On the other hand, Timo Niroma seems to think that the first flood was very localized, suggesting that a bolide fell in the region of the Dead Sea in 2349 BC. That might have devastated lower Mesopotamia, leaving Northern Mesopotamia intact, and allowed for the takeover of those lands by the Akkadians shortly after 2349 BC. But I doubt the local nature for this event.

I think the date and the cause are both incorrect. The cause for the devastation of the Dead Sea region (Sodom and Gomorrah) is a close contact by Mars. The date is 1936 BC. This information is developed in another chapter.

A book by Moe Mandelkehr, *The 2300 BC Event* (2006), in three volumes, similarly presents archaeological data spanning the continents, but, again, with peculiar absences of a record from Egypt and Mesopotamia. Mandelkehr also lumps data to a single date, 2300 BC. Mandelkehr blames the destruction on a massive meteor strike. More on this in the next chapter.

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Note 23 --

The first Chinese chronicles recall the efforts of two early Emperors (or gods), Yao (Yáo) and Shun, in undoing the damage of a massive flood. This is the only flood reference in Chinese literature or later "legends." Chinese scholars circa 200 BC date these two legendary figures, which represent the last two in a series of ten "legendary emperors" (or Gods) to circa 2350 to 2200 BC.

James Legge, in his introduction to *The Shu King* (1879), absolutely insists that "Ti" (Tî), as in "Yao Ti," be translated as "God," not as "Emperor." He also reviews the slim literary threads which place the start of the reigns of Yao and Shun in circa 2350 BC.

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Note 24 --

The parallels between the ten generations after Adam and the twenty early Sumerian and Egyptian kings and pharaohs (which can be equated with the ten appearances of Mars at approximate 30-year intervals) is a clear indication that we are not dealing with derivative sources. A notable parallel is that the 10 patriarchs born between Noah and Abraham are all (except the first and last) sired when their father was 29, 30, 32, or 35 years old. See Appendix A, "Chronology" for further considerations.

Other Middle Eastern influences have been noted in the composition of the Bible, especially the literature of the Canaanite city of Ugarit after 1500 BC. Additionally, there are very clear Egyptian influences, especially in Genesis.

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Note 25 --

The other notable compiler of ancient history is Isaac Newton. The Saturnian people (of Thunderbolts.info) have steadfastly avoided bringing the Bible into discussion. I find this a remarkable omission.

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Note 26 --

The Egyptian "Intermediate Period" between the Old Kingdom and the Middle Kingdom, is variously estimated at 185 years by Manetho (circa 300 BC), 315 years by Breasted (1905), 141 years by Clayton (1994), and 110 years by Lehner (1997). It is obvious from these disparate estimates that the dates are not well established. Today the start of the Intermediate Period is dated to 2160 BC with some confidence. This is 33 years after the event of 2193 BC.

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Note 27 --

Mohenjo-Daro and hundreds of other cities in the Pakistan plain of the Indus river and the parallel dried-up river Sarasvati are totally abandoned after 1900 BC as the region had turned into a desert. It is suspected, however, that the Sarasvati river may be "mythical," that is, that it represented the "river" descending from Saturn during the "Era of the Gods."

The *Oera Linda*, a medieval book claiming to be the history of the Friesian people, calculates 2194 BC as the date of the sudden sinking of At-land -- the area between England and Holland. At the 7000 square miles of the Dogger Banks, off the coast of England, the stumps of trees are still dredged up from a depth of 50 to 100 feet (15 to 30 meters), along with mammoth tusks. The sinking of the area probably resulted from the uplift of Norway as the Ice Age glaciers melted, resulting in a sinking of adjacent regions, including the North Sea, which had been lifted up as the ice had depressed Norway. Geologically this event is located late in the Upper Paleolithic, but a subsidence at a much later date is also plausible.

The *Oera Linda* is suspected of being a hoax in the service of Frisian nationalism, revisionist history of antiquity, and promoting a species of feminism. Arguments against its authenticity are primarily linguistically based, but at times are as arcane as the accusation that the year tallies ignore a "year zero" and thus the sinking of Atland is off by one year from 2193 BC. Of course "At-land" is readily equated by others with Plato's didactic exemplary land of "Atlantis."

The date of 2193 or 2194 BC is not listed as significant by Ussher in AD 1650 or even encoded among other accepted but erroneous biblical dates by Josephus in AD 100. Dates like this did not come forward in the 18th through most of the 20th century, when Egyptian dynasties were still equated with the temporally dislocated Mycenaean occupation of Greece. Although there were archaeological papers earlier in the 20th century, as far as I can tell, the first to settle on this date was Timo Niroma at his site [<http://personal.eunet.fi/pp/tilmari/>]. He quotes H. Weiss, *The Sciences* (May/June 1996), about the Akkadian empire of Sargon:

"Then, abruptly, things fell apart. Sometime around 2200 BC seasonal rains became scarce, and withering storms replaced them."

A number of people writing in documents published by the SIS [<http://www.knowledge.co.uk/sis/>] came to the same conclusions in the 1990s. But all of them retained tentative dates, like "around 2200 BC." I applied

Velikovsky's suggestion of a 52-year period for Venus (although he never reached as far back as 2200 BC), assumed the actual date was 2193 BC, validated it with an arcane reference from Maya calendar information, and applied the date also to the fall of Egypt after the 6th dynasty (the Old Kingdom). I should point out that this date also easily fits alterations in the Mesoamerican calendar. My adopted date of 2193 BC is thus based almost entirely on common sense rather than documents and ancient testimony, and thus one of my least well supported.

Niroma also extended the start of the worldwide drought to the Indus Valley and the cessation of the Harappan civilization. And applied it to the fall of the Old Kingdom. This was a very large step for Niroma to take, far beyond the endless pussy-footing of Egyptologists and archaeologists, but once taken, it makes perfect sense and fits worldwide data. Niroma concludes:

"My hypothesis is that there were two events, the first one around 2350 BC (2345 BC?), and the second one around 2200 BC (2193-2194 BC?), of similar cause, but possibly independent of each other."

How did the *Oera Linda* arrive at a date of 2193 BC? Wikipedia reports:

"It [the Oera Linda] also mentions Atland (the name given to Atlantis by the 17th century scholar Olof Rudbeck), which was supposedly submerged in 2193 BC, the same year as 19th century Dutch and Frisian almanacs, following traditional Biblical chronology, gave for Noah's flood."

Wikipedia might be in error here. Why this almanac date is off by 156 years from the date published by Ussher in AD 1650 for the flood of Noah, I do not know. As a fake document, the *Oera Linda* dates from the middle of the 19th century AD.

[\[return to text\]](#)

Note 28 --

The Chinese *Annals of Shu* hold that Shun, the Moon, dies in 2205 BC, that is, he "dies and goes on high." The date was estimated by chroniclers of the Han dynasty (200 BC) and should probably be 2193 BC, applying a uniform correction to the Han dates (see later text). The action is an increase in the period of the Moon which would have accompanied an increase in the orbit of the Earth also. I'll expand on this in a later chapter.

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Chapter 20: The Flood of Noah.

\$Revision: 42.1 \$ (noah.php)

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The Flood Reconsidered

The shock of the disturbance of 2349 BC was entirely equivalent to the shock of 10,500 BC in North America, except that it was on a smaller scale. So I will not repeat the order of events involved here, details of which are, at any rate, to be found in Appendix B, "The Celestial Mechanics." There were differences. A different planet was involved, the latitude of the impact was lower in 2349 BC, the tilt of the earth was less, the direction of the leading edge of the impact area was different, and the high plateau where the mountains were removed was wider.

Most significant was the fact that there was no lightning strike to the Earth's surface, but instead a plasmoid traveling from Venus impacted the Absu, rather than the Earth's surface. No massive forest fires were started, and no nanometer dust levitated into the stratosphere to cause hundreds of years, or a thousand, of shadow.

I think the "flood of Noah" never happened. At least, not on Earth as a flood, although certainly Earth sustained water damage from rain, storms, and hurricanes. I suspect that what was thought to be the "flood" by everyone was, in fact, the disintegration of the Absu, the rings surrounding the Earth -- which in antiquity was universally understood to be an ocean.

That the Absu (or the Egyptian Duat, or the Maya "House of Nine Bushes") was real, I have no doubt. The rings of Saturn had been seen since the invention of the telescope. Then, in the 1990s, as space probes approached Jupiter, rings were found, like the rings of Saturn, but fainter. Then rings were discovered for

Uranus and Neptune also. All four planets have magnetic fields. So does the Earth.

Venus, the Moon, and Mars do not have magnetic fields and do not have rings. Mercury also does not have rings, probably because it has a very weak magnetic field. Astronomers think that the rings of Jupiter, Uranus, and Neptune are fading and that the rings of Saturn will also fade over time. Saturn, which has the brightest and most extensive rings, is, however, a very electrically active planet. At closer distances, as reported by NASA in the 1980s, the rings of Saturn are seen to be composed of "spokes, braids, waves ... and spiral shapes." Twenty years later, in AD 2000 to 2008, during a less active period of the Sun, they have smoothed out. [\[note 1\]](#)

When the Mesopotamians start mapping the sky, they name the southern section of the sky, below the equatorial, "the path of Ea." Ea is the Babylonian God of the waters, the Akkadian god of the Absu. He is the Sumerian Enki, also God of the Absu. In Akkadian "Ea" is written with the Sumerian glyphs "EN.KI" -- "water house." "En" translates as "home," "house," or "temple." Houses in Sumer were initially constructed of reeds and with semi-circular (domed) roofs. This is what was seen in the south, a dome of reeds extending from the east to the west, located somewhat below the level of the equatorial in the sky, but with all the rings or sections of rings coming together at the east and west cardinal compass point. There is no question about the location of the Absu. [\[note 2\]](#)

It is certain that the Earth had rings, that they were clearly visible in the southern hemisphere of the sky (from a northern vantage point), and that the rings included constantly moving "spokes, braids, waves, and spiral shapes." The Egyptians also called the Duat "a field of rushes." It might have looked to them like marshland.

It certainly would also have looked like a sea, especially to people who lived some distance from the world's real oceans. In the Yucatan, closely surrounded on three sides by real oceans, the Maya were not fooled, however. The rings also stood 10 degrees higher in the sky as seen from the Yucatan, reaching to about 60 degrees up from the southern horizon. It was a celestial house instead, a "house of bushes" created by the Gods.

China, at about 35 to 40 degrees latitude, would have seen the rings stand about 50 degrees up from the southern horizon. China, like most locations further north than Egypt and Sumer, reported 9 rings. [\[note 3\]](#)

The Earth's clouds, rising from rivers and forests at dawn, could be seen passing in front of the Absu. That alone would be enough to make the Absu look like a real and solid object and as an extension of the land at the horizon. When the clouds passed, the Absu was still there.

Because of the way the rings merged at the horizon in the east and west, they are often represented as a 7-headed or 9-headed serpent. The heads of this snake were caused by the shadow of the Earth extending completely from the southern horizon to beyond the highest rings. This only happened at the time of the equinoxes. The penumbra of the Earth's shadow would make the gap wider at the top.

There are similar notions from Mesoamerica, where the rings stood considerably higher in the sky, that "the world" constituted a flat plane (a gap) between two giant step-pyramids. This was the view at the time of the year near the equinoxes. At or near the equinoxes, the view of the separate rings, each higher one in the sky ending at a distance further from the center of the gap, would certainly have made it look like the gap was bordered by two step-pyramids or inclines. Mesoamerican ballcourts almost always are built as 6 steps, but also as just a sloped plane.

It is obvious that many of the spells from the Egyptian *Book of the Dead* (first recorded as tomb texts in 2345 BC), which guaranteed entry to the afterlife for the dead, are better explained if referenced to the image of the Egyptian Duat rather than the Saturnian polar apparition before 3147 BC.

Most obvious are many spells dealing with travel in the ship of Ra. The spells were written and augmented over a period of more than 3000 years (and the imagery certainly dates back as far as 8347 BC). Some of the earliest spells speak of a crescent ship traveling around the "river" at the edge of the globe of Saturn in the north sky. But after the breakup of the Polar Configuration in 3147 BC, the planet Gods were seen to travel along the river of the southern sky. Ships were still required.

The gods and planets identified with the Egyptians continue to travel by boat for the next 3000 years, as they do nearly everywhere in the world. In Egypt the temple Gods are ferried up and down the Nile to visit Gods at other temples. Statues were carried in ships to be dragged in processions. The spells still speak of ships, but after 3147 BC the journey is no longer along the blazing circular river at the circumference of Saturn, but along the river of the ecliptic and the edge of the sea in the southern sky.

One phenomenon which is clearly difficult to associate with the polar apparition in the north is the "door to the underworld." But it is readily explained by the shadow of the Earth moving from east to west across the Duat every night. The Earth is illuminated by the Sun at an angle to the equatorial which varies with the time of the year. During most of the year, except at the time of the equinoxes, the shadow would have looked like an arched doorway (referred to in one spell from the *Book of the Dead* as a cave). In between the times of summer and winter, the shadow would have progressively lengthened to become infinite at the time of the equinoxes. [\[note 4\]](#)

When the shadow fell all the way across the rings and formed a gap, it would have been more or less shaped like an inverted trapezoid. The gap at the top would widen with the distance from Earth, since the penumbra of the Earth's shadow widens with distance. The "half shadow" of the penumbra would have considerable density since it is located relatively close to Earth (unlike in a lunar eclipse, where the penumbra is markedly faint). But it would also decrease in darkness with distance, so that at a considerable distance above the Earth it would have fallen off noticeably.

During the day the Sun would have lighted the Absu from behind. The Sun would travel above the equatorial circles during most of the year, but would shine through the Absu in the winter months. I have no idea what the effect would be exactly. It might not have looked different from today's Sun located behind a haze. In that the Sun is the largest and brightest object in the sky, it would be certain that during the winter months the image of the Sun would be preceded and followed by other amorphous forms, which would show local motion because they were imbedded in the equatorial rings which moved incessantly. Today, during dusty atmospheric conditions, these show up and are called sun dogs. In antiquity they were held to be the horses of the Sun. In the 13th-century Icelandic *Prose Edda* the forms which follow are held to be wolves chasing the Sun. Even nearly 2000 years after the Absu had disappeared, the horses of the Sun remain in place: in 685 BC it is Phaethon who loses control of the horses of the Sun.



*[Image: Sun dog images, Fargo North Dakota.
After Wikipedia. Note the start of a circular form.]*

Seen from the southern hemisphere, the Absu would have looked the same as in the lands of the Eastern Mediterranean, Mesoamerica, North America, and Asia, except that the rings would have been placed above the north horizon. In Peru (for example, at Lima) the rings would have stood up at an angle of 60 or 70 degrees from the north horizon. The existence of the Earth's shadow on the rings might be acknowledged in the U-shaped ceremonial centers which dot the countryside in the deserts, and which date back to circa 2500 BC.

To recap: every night a gap appeared in which the rings were not visible, and which moved from the east to the west. The Egyptians called it "Naarutf." *"The meaning of the word is 'it never sprouteth',"* wrote E. A. Budge (1895), *"and is defined as 'a section or door of the Duat which lies to the north of Re-stau.'"*

"It never sprouteth" indicates the missing image of spokes and "rushes" which "grew" everywhere else where the shadow did not fall. "Re-stau" originally was the cemetery at Abydos, and came to mean, wrote E. A. Budge, *"the passages in the tomb which lead from this to the other world"*. The phrase in the paragraph above, "north of Re-stau (Abydos)," might also be rendered as "Abydos lies south of the Duat," and thus the "other world" was located beyond the doorway of the Duat. The view through this doorway was obscured, for although some bright stars (and planets) would have shimmered through the unlit portion of the rings, the dust and gases of the ring would have blocked most starlight from passing through. (Sirius and Canopus, the two brightest stars were noted exceptions. See a later chapter on the effect of seeing both of these stars, one above the other.)

The concept of a doorway is completed when it is realized that when the shadow took on its longest shape at the equinoxes, and extended beyond the end of the rings, the shadowed gap would be capped by a lintel -- a beam -- stretching

across the shadowed portions of the Duat and extending beyond it to the east and the west (although at an angle). This is the bright "path of the Gods" -- the ecliptic -- so far removed from Earth that the shadow would not reach. This might be reflected in the post and beam gates seen as freestanding structures in China and Japan. But of course to the people of Earth the ecliptic was no further away than the edge of the rings. [\[note 5\]](#)

Near the time of the equinoxes, the east and west edges of the shadow, the penumbra, the partially lighted area surrounding the dark full shadow of the Earth, would have fallen on the rings. This would be an area which widened with the distance from the Earth, and becoming fainter further from Earth. Seen from Earth this would constitute an edge which bent away from the center, thus making all of the Duat look more like two mountains with a valley in between. [\[note 6\]](#)

There is a lack of early Egyptian visual references to the Duat or the doorway to the Duat. Perhaps this is because the spectacle in the sky never varied or showed any activity and came to a sudden end in 2349 BC. Later depictions of the sun god Re, however, frequently show disembodied arms extending up from a baseline (representing the horizon) to the red disk representing Re. These might be representations of the penumbra seen at the edges of the "doorway" shadow (although I doubt that). Two arms extending up from a baseline is the hieroglyphic for "ka" also, the meaning of which might be translated as "soul."

Late depictions also show Ra as a huge red ball suspended in a valley between two mountains (or what looks like mountains). Tomb texts place the uplifted arms in the south, in the Duat, "The Aten [the globe of Re] is in the Tuat [Duat]. The arms of the Mysterious Face come out and lift it up." I have wondered if this last is a reference to the smiling face formed by the first ball plasmoid, where the arms would be two of the lines of electrons. This was something which could only have been seen two thousand years earlier by people close enough to the equator to get an unobscured view beyond the equatorial rings. (The snake-haired smiling face shows up regularly in Australia and South America where a clear view would be had. The Egyptians originated from Ethiopia, where the face of the southern ball plasmoid might have been clearly seen.)

Since the doorway moved from the east to the west, it was the west which became the location of the underworld, as Budge explained, about the Duat:

"... it must be distinctly understood that the Egyptian word does not imply that it was situated under our world, and that this rendering is only adopted because the exact significance of the name Duat is unknown. The word is a very old one, and expresses a conception which was originated by the primitive Egyptians, and was probably known to their later descendants, who used the word without troubling to define its exact meaning"

One of the spells of the "Book of the Dead" is titled:

- Chapter XCIII. The Chapter of not sailing to the east in the underworld.

Sailing to the east over the sea of the Duat (or possibly the river of the ecliptic) would result in missing the entrance to the "Land of Life," which was in the west. Almost uniformly all the Egyptian graves were located west of the Nile in the western desert.

If the shadow on the rings was understood as a doorway, then we would also expect references to a doorway among the spells of the "Book of the Dead," and as a matter of fact, these exist, as in the following examples (I have only listed their titles):

- Chapter LXVII. The Chapter of opening the doors of the tuat [Duat] and of coming forth by day.
- Chapter CVII. The Chapter of going into, and of coming forth from, the gate of the gods of the west among the followers of the god, and of knowing the souls of Amentet.
- Chapter CLXI. The Chapter of the opening of the doors of heaven by Thoth, etc.
- Chapter CLXXIV. The Chapter of causing the khu to come forth from the great gate of heaven.

And, from the *Papyrus Ani*, a hymn pointing to the travels of Re through the skies:

- Chapter XV. A hymn of praise to Ra when he riseth in the eastern sky, and when he setteth in the [land of] life.

This again points out that Ra (Re), the chief God whose worship had started sometime after the close of the "Era of the Gods," was always first seen in the east after an absence from the south skies of many months. This is Jupiter with a lower coma tail, it is not Ra as Saturn when he stood still at the North Pole, nor is it the Sun. Jupiter would, after the course of some months, disappear again (or reduce in size) in the west. The "land of life" was located in the west, the location to which the rings, the doorway, and Re moved. [\[note 7\]](#)

The Fall of the Absu

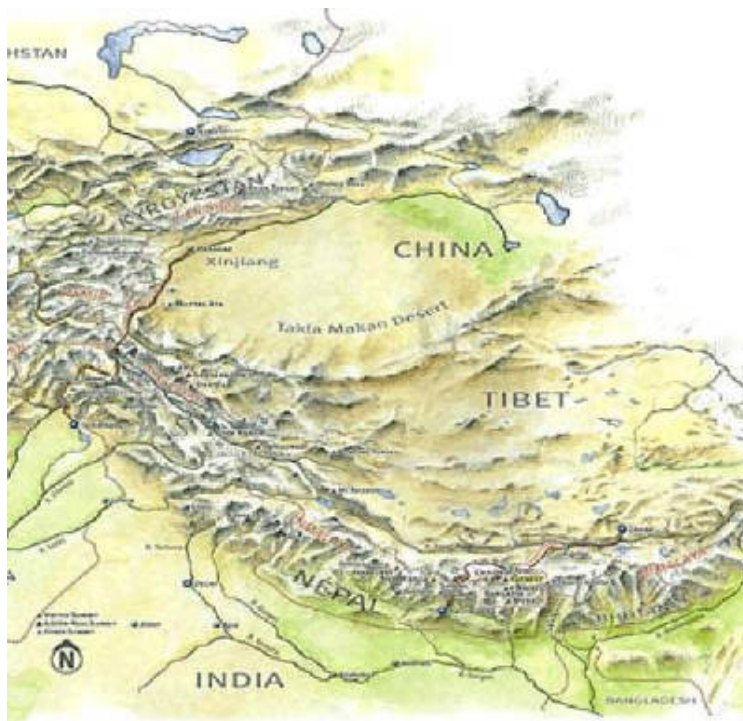
What happened to the Sumerian Absu, the sweetwater ocean which had spanned all of the southern skies? There seems to be no unequivocal notice about its disappearance. That may be because it was so gradual as to be unremarkable, or to have transformed into something altogether different. As likely, we cannot read the references to it, couched, as they are, in language not at all familiar to us. The Absu is obviously gone by 2200 BC. In the Babylonian *Enuma Elish*, written somewhat later (probably after 1800 BC), the Absu has become deified as a God to become an actor in a narrative of the creation of the world.

Let me suggest that the Absu disappeared suddenly, in 2349 BC, perhaps in a matter of days, because of an electric interaction with Venus and a temporary change in the tilt of the Earth's axis. At the same time the Earth moved further away from the Sun and to the established orbital path of the Moon.

Moved further from the Sun, to a new location of lower potential in the electric field of the Sun, the Earth would have started discharging to the surrounding space. Such a discharge would normally be very slow, in dark mode (except at the poles), and lasting hundreds of years. However, the disruption caused by Venus was rapid, with the nearby Moon providing an additional electrical path into the space facing away from the Sun.

If we can give any credence to some of the "flood stories," the Absu fell in a few days. The fall was also probably rapid because the contact by Venus caused radical changes in the electric field which kept the rings suspended. The electric repulsive impulse force from Venus seems to have struck in the northern hemisphere in Asia north of India -- north of the Himalayas in Tibet.

The Himalayas at the edge of the northern border of India (Kashmir, Nepal, Bhutan) form a circular arc some 1,600 miles long (2,500 km), which has all the looks of a compression shock. Similar semicircular arcs of compressed mountains exist in Mongolia, Iran, and the continental USA.



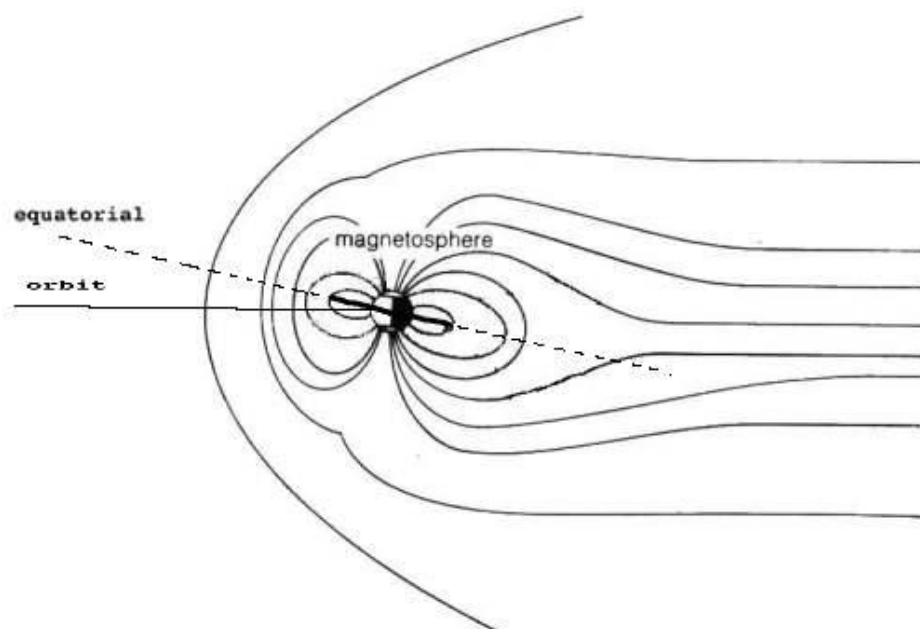
[Image: Himalayan Mountains between India and China. After imgarcade.com.]

Typical of the fact that the Earth would have kept rotating (while tilting away from the Sun), the opposite arc is missing. This is unlike the Moon's Orientale basin, or the Caloris basin of Mercury, which are also clearly compression shock sites, but of planets which rotated only slowly. [\[note 8\]](#)

As a result of the sudden repulsive shock, the axis of the Earth went into a swing, with the northern part initially moving away from the direction of the Sun. The equatorial rings would have swung up at a steep angle to the Earth's orbital plane, placing them directly between Venus and Earth (as the Earth kept rotating).

The main disturbance of the rings came with the arrival of a plasmoid thunderbolt -- a disconnected electric arc -- from Venus. The particles, gases, and ionized atoms held in suspension in the Absu were disturbed or neutralized and departed when the plasmoid from Venus arrived and slammed into the Absu.

The Absu turned red and then disappeared except for one remaining ring. It looked like the arrival of a dragon which smashed into the rings. The untold billions of electrons arriving and smashing into the rings of the Absu would have neutralized most of the ionized gases and particulate matter. The dragon bled for three days. The "blood" seen in the sky could have been constituted by the ionization of any number of diffuse common atmospheric gases.



[Image: Earth's magnetosphere and equatorial Van Allen belts. The equatorial rings are shown here as a dark line at the equatorial near Earth. The location of the Sun is to the left. Illustration by J. Cook.]

Much of the coulomb charge of the Earth is normally tied up in the toroidal belts of the magnetosphere at the equator. This is the source of hurricanes -- when this belt arcs over to the atmosphere in the tropics. I would expect the "discharge" of the Earth to have happened in both directions, towards Earth from the rings and out to space via the Moon. The arrival of the plasmoid would disrupt the rings by neutralizing the electrostatically suspended particulate matter and also by reducing the electric field of the Earth which held the particles suspended above the equator.

The loss of the electric charge of the Earth might have been sufficient to have destroyed the Absu. The particulate matter could no longer be suspended in rings around the Earth. It fell in or moved out into space. We can assume that much of the particulate matter simply drifted down to Earth, and that larger

rock-sized chunks (if any) started to move away from Earth. This reflects the current thinking of NASA concerning what they foresee as the ultimate dispersal of the rings of Saturn (<http://photojournal.jpl.nasa.gov/> February 12, 2002).

... the snake Apep

As the gases and particulate matter moved away from Earth they would visually approach the equatorial, a plane directly above the Earth's equator, the far edge of which is seen as a circle in the sky located from directly east to directly west but set at an angle equal to the complement of the latitude (90 degrees less the viewing latitude). Visually, even as the dust and rocks kept moving ever further from Earth, it would never seem to move higher into the sky than the far location of the equatorial. Over time, as the distance from Earth continued to increase, it would simply disappear.

There remained, however, a last ring, at a considerable distance above the equator. This last ring might be equated with the lapis lazuli necklace of the Goddess Inanna, mounted up in the sky as a sign from the Gods to never again bring such a flood, except that the ring was red, not blue. It would, however, match the effect suggested in the Maya *Chilam Balam* which describes that, after the flood, the "roof beams" of the sky became visible -- the ecliptic and the last ring of the Absu below the equatorial, crossing each other at an angle. The ecliptic had not been seen earlier when it was behind the Absu.

The two rings rose in the night sky, surrounding the Earth. In the Yucatan the last ring of the Absu would be seen as standing very high up in the southern sky, stretching from directly east to directly west (but at an angle). The ecliptic consisted of a hoop which intersected the red equatorial ring at the two locations of the equinoxes. At that time the Pleiades stood above the intersection at the vernal equinox.

The Earth still cast a shadow on the last upper ring of the Absu, but because of the increasing distance (the dust and particles of the red ring seem to have been located at about 6000 miles, 9,600 km, from Earth), the shadow would only show as the Earth approached the equinoxes. Then the shadow of the Earth, of the same width as previously at this location, would fall across the ring. The ring with this gap would look like a giant snake whose head moved up from the east and slid across the southern sky to the west each night, closely following its own tail. At other times of the year only the long body of the snake would be seen, since the shadow of Earth would not reach out far enough. [\[note 9\]](#)

The glowing band of the ecliptic would also be seen. The ecliptic crosses the equatorial at the location of the equinoxes. Since the Earth's shadow would not reach or be seen on the ecliptic, it would remain lighted where the shadow of Earth fell on the equatorial at the time of the equinoxes. The ecliptic thus looked like it passed in front of the red band below the equatorial -- certainly a confusing visual presentation, since we know that just the opposite is true.

In Maya iconography the crossing of the two sky bands is used in representing the sky or the sky band (the ecliptic), with a symbol known as the Saint Andrew's cross. This symbol is not simply an "X" figure, but always has one of the bars cross in front of the other. (The vernal equinox is designated by having the bar which starts at the top left pass in front of the other; the autumnal equinox reverses this.)

This last outer ring of the Absu lasted a long time, well into the current era. This last equatorial ring has entered mythologies worldwide as a celestial snake -- called Apep by the Egyptians and Apophis by the Greeks. It adds to the utter confusion of monsters, dragons, snakes, and serpents.

"Comparative investigation confirms that every well-documented culture possessed its own names and images of the serpent or dragon of chaos -- the monster whom the Babylonians called Tiamat, the Greeks knew as Typhon, and the Hindus called Vritra or Ahi. In Australia it was the Bunyip-monster, sometimes identified as the 'Rainbow Serpent,' that once decimated the earth. And in North America remarkably similar stories were told of the 'Great Horned Serpent.'"

-- David Talbott, *Thoth newsletter* (2002), draft text for the book *Thunderbolt of the Gods* (2005)

I cannot speak to the Australian Bunyip-monster, although it is said to lurk in swamps and waterholes -- an association, I presume, with the Absu. I find "Rainbow Serpent" quite revealing, not because of the implied coloration, but for the form of an arch across the sky. This would seem to be Apep of the Egyptians, except that the serpent has horns. This last feature would equate the Rainbow Serpent with a polar plume.



[Image: Bunyip, Australian water monster.
After "Illustrated Australian News " (circa 1890)]

With the background of the historical sequence of events presented in this text, it will be recognized that the Babylonian Tiamat is Venus in 2349 BC, and the Greek Typhon is Venus in 1492 BC. Then, not included above, there is Phaethon, which can be placed in 685 BC as Mercury. These last three will be presented in later chapters. The "Great Horned Serpent" is distinct from all three of these. It is probably the north polar plasma plume which appeared each time the orbit of the Earth increased, complete with horns, as I have illustrated previously. Apep, on the other hand, is the last remaining ring of the Absu, also to be placed after 2349 BC, and remained in the sky into the current era, probably as late (I suspect) as AD 600.

Apep, in fact, does not appear in Egyptian mythology or depictions until after 2200 BC. It did not exist earlier, and since then was seldom noted because the red ring, like the Absu, never did anything significant except to color some bright stars. Spells to ward off the evils of Apep are only added to the *Book of the Dead* very late, as a matter of impressing the Greek (Ptolemaic) overlords after 300 BC. A chapter of spells in a papyrus dating from these times, called the *Book of overthrowing Apep, the Enemy of Ra, the Enemy of Un-Nefer* (Un-Nefer is Osiris), gives directions for:

"preventing storms, and dispersing rain-clouds, and removing any obstacle, animate or inanimate, which could prevent the rising of the sun in the morning, or obscure his light during the day," -- paraphrased by E. A. Budge, in Legends of the Gods (1912)

The Egyptians were at this time, after 300 BC, transferring the title of "Ra" to the daytime Sun. (It was about time!) The Egyptians had also run out of visible celestial monsters, and thus promoted the Apep ring to the status of a vicious snake. He was depicted in Egyptian illustrations as pierced with knives to color him red with blood. This is quite alike to the Maya depiction, where the celestial snake has patches of flayed skin.

Near the dates of the equinoxes, the head of the snake would be seen nightly rising in the east as its tail disappeared in the sky in the west. It seemed to be chasing its own tail. As the year moved away from the time of the equinoxes, Apep would catch up to its tail and swallow it. The image of a snake swallowing its own tail, called the Ouroboros, still appears among medieval alchemical documents. Of course it did not have a distinct head -- snakes do not have distinct heads. Among the later Maya it was merely a cord in the sky. [\[note 10\]](#)

In Ireland, St. Patrick, active to about AD 500, in legend drives Ireland's snakes into the sea. There never were any snakes in Ireland. But there was the celestial Apep which disappeared about that time.

Another story (legend) concerning St. Patrick and a snake is retold by Philip Coppens:

"The legend states that Patrick was drawn here [to Station Island] by the triple goddess Corra, a pagan goddess who apparently tried to reclaim Ireland to the pagan gods after Patrick's recent success at Croagh Patrick."

Croagh Patrick is a sacred mountain in Ireland, where St. Patrick stayed 40 days to prove the superiority of Christianity. You will recognize the "triple goddess" as the southern ball plasmoids appearing between 10,900 BC and 8347 BC, especially when she turns into a snake.

"On his flight - indeed - from Croagh Patrick, he looked down, and saw that she had taken the form of a serpent, lying in the water of Lough Derg - the Red Lake, though some recent authorities prefer to read Derg as a form of the Irish deirc, "the lake of the cave". Descending to investigate, she swallowed him whole. It took Patrick two days and two nights to cut himself

free, killing her in the process. The water turned red with her blood and her body turned to stone, forming the islands in the lake."

-- from <http://www.philipcoppens.com/croaghpatrik.html>

The action retells the event of 2349 BC -- 2800 years later for Patrick, 4300 years later for Coppens. It includes the "two days and two nights" common to all the retellings, plus the "water" turning red with blood. The "Red Lake" is as appropriate to the event of 2349 BC as the "lake of the cave" is in signifying the Absu with its doorway.

The *Younger Edda* of circa AD 1200 relates, as one of the subjects (constructs) of bardic epic poetry, the disposition of one of Loki's evil children, Jormungand the Midgard-serpent, which Odin the Alfater threw into the ocean:

"When they came to him he threw the serpent into the deep sea which surrounds all lands. There waxed the serpent so that he lies in the midst of the ocean, surrounds all the earth, and bites his own tail."

The snake swallowing its own tail is Apep again.

From Alfred Tozzer, *A Comparative Study of the Mayas and the Lacandonas* (1907), from verbal sources, we have the following:

"... there was a road suspended in the sky, stretching from Tuloom and Coba [that is, the east] to Chich'en Itza [which is only halfway] and Uxmal [that is, the far west]. It was in the nature of a large rope supposed to be living and in the middle flowed blood. For some reason this rope vanished forever. This first epoch was separated from the second by a flood."

The above account is quoted by Schele and Freidel in *Maya Cosmos* (1993). This is a recollection of the lowland Maya (the Northern Yucatan). The road in the sky will be recognized as the last remaining ring of the Absu. The flowing blood, also, is an aspect of the last ring of the Absu, for it can be determined to be red from the look of Sirius before AD 950, among other things. The "flood" (the flood of 2349 BC) separating two eras, as mentioned in the quote above, is actually misplaced. There is no causal connection with the disappearance of the red rope, which happened at a much later date. But it was at the time of this flood that the red rope first appeared.

The story also reflects on the Maya road which was built in AD 800 to 850, between the city of Coba in the east and Yaxuna directly west of Coba, 62 miles long (84 km), and representing the largest construction project ever undertaken in the Yucatan. This is less than halfway the total distance from Coba to Uxmal. The industry and enthusiasm with which this project was undertaken may reflect the fact that the red road in the sky had recently disappeared. There are a number of other, much shorter, causeways like this, also running east-west (some are processional roads to outlying shrines). Schele and Freidel (in *A Forest of Kings*) think that this road, too, functioned as a processional way.

... the Falling Rings

As I have mentioned, the Moon was thought to have been seen since the remotest period in antiquity, but this was most likely the planet Jupiter seen at close quarters. Thus, as presented with the sculptures of the Maya site of Palenque (AD 700), as well as in Hesiod's *Theogony* (circa 650 BC), the Moon preceeds any of the Gods. She is the mother of all the gods.

The sudden clear appearance after 2349 BC probably made it look as if the Moon swept the Absu clean. But the Moon, although given credit for the cleanup after the flood (as the Chinese Legendary Emperor, or God, Shun), could not have dispersed the rings physically, for the Moon today is 250,000 miles (400,000 km) away from Earth, and probably has always been on an orbit on that order. The rings probably only reached, at most, about 8500 miles out.

Both the initial as well as the eventual dispersal of the equatorial rings was electrical. An outward dispersal, however, could have happened via the plasma tail of the Earth, which, even today, reaches well beyond the orbit of the Moon. But probably most of the contents of the Absu drifted down to the atmosphere below, and fell to Earth.

Charles Raspil, in an article "Spatters and Planetary Iconography" (*The Velikovskian*, 1994), details the recording of "spatters" from the middle of the second millennium BC through the 18th century AD. The spatters look like raindrops and rosettes, placed in artworks almost randomly surrounding depictions of gods or humans in any scenery.

Raspil identifies the spatters as astrological iconography, rather than to think of them as representing physical phenomena. But the spatters make more sense if understood as representations of minute dust particles drifting to Earth, carrying

an electric charge from the far upper region of Earth. On nearing the surface of the Earth, the spatters would disintegrate electrically. This would suggest that dust from the Absu rained down for nearly 4000 years. If, as Raspil claims, the depiction of random spatters only started in the second millennium BC, then perhaps it was the change in the Earth's electric field after 1492 BC which made a difference. There is, however, little if any artwork from before even the first millennium BC to inspect.

Raspil has made a career of finding strange anomalous forms interspersed with pictorial forms in artworks dating from antiquity to the 18th century AD. The spatters seem like fillers of graphical space, but at the same time look as if they were objects regularly seen in the sky, or near ground level. He writes:

"In their portrayal of the spatter, artists distribute it randomly within the confines of any particular artwork. It is small, taking up little space within the borders of any particular opus, and is multiple, appearing in pluralities. Its random distribution and appearance, along with its nonuniform configuration, suggest that it is a natural phenomenon and not an artistic symbol."

"The basic spatter configuration consists of one large ringlet surrounded by many smaller ringlets (eight, usually). Variations exist: small square- or diamond-shaped ringlets may surround the central ringlet. On occasion, only a few nascent dots, not ringlets, will arrange themselves in significant patterns (patterns of spatters)."



[Image: Spatters. After Raspil]

Raspil illustrates a Rhodian plate (above) which highlights action from the Trojan War, and comments:

"Both the basic and more sophisticated spatters appear: the former to the immediate right of the first soldier's nose and between his legs, as well as above and on the second soldier's shield; the latter on the extreme right and left of each opponent, and in the centre of the diagram, between their two shields."

"The sophisticated spatters appear to be 'petaled.' Two of these spatters are cut off by the borders of the plate. If these spatters were symbolic, not natural, why would the artist cut them off and treat them as if they were mere background, like clouds in a photograph?"

This suggests dust particles falling to Earth, and igniting briefly in the blaze of plasma (a switch to glow mode or arc mode), as suddenly as firecrackers and perhaps with the sound.

As Raspil points out, the spatters occur on all continents and with the graphics of all civilizations. Raspil traces the spatters into the 18th century AD, whereas I claim that the "snake" Apep disappeared before AD 800. But even though Apep was not seen, it is possible that the dispersal of dust to Earth's surface continued for another 1000 years.

... the Moon on Fire

Let me propose that the Moon, which joined Earth in 2349 BC, initially had an atmosphere, which caught fire a hundred and fifty years later in 2193 BC.

There are some disconnected Australian legends of the Moon alternately growing hair and trimming it. That would be the sight of the Moon's plasma tail seen from an angle from Earth, and shortening as the angle between the Moon and the ecliptic changed throughout the year. There are also Greek and other references to a bearded Moon, which is the same image.

If the Moon initially had an atmosphere, it would likely have consisted of hydrogen, methane, carbon dioxide, and oxygen -- if it was at all like any of the other planets. That represents a condition which could ignite massive fires if any impinging plasma changed to arc mode on contact with the Moon. We will see this condition for Jupiter in 2150 BC, and for Mercury in 686 BC.

The Moon may have been very active electrically after it joined the Earth in a nearly equal orbit. But I would also suggest that if the Moon initially had an atmosphere then plasma strikes from Earth impacted in glow mode at the Moon -- which means that nothing of particular note was seen, and few scars remained behind.

I am proposing this because at some point, there is a spectacular fire at the Moon. Everyone noticed, and all peoples incorporated the fire into their tales and legends.

When might a fire have happened, and in what order? Probably not initially after 2349 BC (Noah's flood), because the Earth only moved further from the Sun, and thus had to increase its own negative charge. However, this was not the case for the Moon. Then in 2193 both the Earth and the Moon moved to a new location, and both would have been subjected to an influx of electrons. For the Earth this would have shown as polar plumes (at each pole), but nothing like that would have resulted for the Moon, which has no magnetic field.

The glow mode display might have stopped after 2283 BC (Palenque, corrected from 2305 BC) or 2285 BC (according to the *Annals of Shu*). The texts would suggest a sudden change from glow mode to arc mode, and therefore noticed by humans, which would account for the assigned dates.

At Palenque the Moon becomes ruler in 2283 BC; in China, Shun joins Yao on the throne in 2285 BC. These dates may reflect another electric contact with Venus, which would most likely have happened in 2297 BC. But 2297 BC falls 14 years short of 2283 BC.

Interestingly, the two clear "legends" of a fire at the Moon indicate that an event happened on a mountain. The mountain image associated with Mars between 3067 and 2750 BC consisted of a plasma stream extending from the Earth's ionosphere to the surface of Mars. The mountain of Jupiter was the plasma plume extending from below the lower hemisphere into space. The tower (rather than a mountain) associated with Mercury in 686 BC was plasma streaming from Earth to Mercury (to be presented in the next chapter).

A streaming of plasma from Earth to the Moon (like for Mars and Mercury) would be unlikely, since the electric conditions would not have existed. For a long time, like today, Earth and the Moon have been at nearly the same electric potential for the region exterior to the Sun where they both travel. It is more likely that the mountain shape is a plasma tail of the Moon in glow mode, which

it certainly would have had if an atmosphere still existed. The reason this was seen (and understood as a mountain) is because the nighttime Moon rises 5 degrees above the ecliptic, and thus the extension of its plasmasphere away from the Sun would have been visible from Earth.

After a fire on the Moon the plasma in glow mode would never again have been experienced. It has to be presumed that the remaining atmosphere would have disappeared over the course of the following thousands of years. Very little atmosphere is left today on Mercury after the planet fire of 686 BC. That was only 2600 years ago. Thus it would be unlikely that the Moon would show any atmosphere at all, because the fire happened 4300 years ago.

A planetwide fire would explain the Bible tale of Abraham who is told by God to sacrifice his son Isaac as a burnt offering on a mountaintop. His hand is stayed by God, and a ram is substituted. Isaac thus survived the fire; so did the Moon.

A parallel Chinese legend has it that Khwan, who was engaged by Yao to clear the inundation, was "sacrificed on a mountain" in a fire -- when he failed to accomplish his task of clearing away the waters of the flood. His son Yu rose from the ashes and completed the task. Han dynasty historians speculated that Yu was born in 2300 BC. Yu is assigned also as the first king of the Xia dynasty.

In both cases someone survived the fire. Actually, of course, it is the smaller bare Moon who is the survivor. That would also suggest that all the electric scars of the Moon date to after 2200 or 2100 BC.

The Moon possibly rotated when it first joined Earth, although the very circular look of Mare Orientale basin suggests this was not so. Ralph Juergens, in "Of the Moon and Mars," has suggested that the basins (on the front side) could have happened in a contact with Mars in the 8th century BC. It is possible that the craters on the back of the Moon were formed in 685 BC, when, like Venus and Mercury, Earth and its satellite probably also exploded in flames -- from the stratosphere or ionosphere for Earth, from the surface for the Moon. During the 40 day nova event of 685 BC, the Moon circled the Earth one and a quarter times. So craters would appear on all sides.

Within a few decades after first meeting in 2349 BC, the Earth and the Moon would have started to revolve around each other on more or less the same orbit around the Sun, as they do today. The motion of the Moon actually describes a path today which starts some 20,000 miles (32,000 km) above Earth and over

the course of six months spirals to a location an equal distance below Earth, after which it reverses again. (It actually describes the figure of a rosette, not a series of loops.) Moon eclipses only happen at a six-month interval, at the time when the Moon is passing from above the Earth to below, or in the reverse direction.

We can now also clarify the contemporary quotation from a Columbian source in the previous chapter:

"When the Moon did not yet exist, a bearded old man named Botschika taught the arts of agriculture, clothing, worship and politics to the people. His beautiful but malevolent wife was Huythaca. She caused a flood in which most people perished. Botschika then turned her into the Moon."

Now we realize why the Moon was held responsible for the flood; the Moon's flood is here confused with the flood of 3147 BC. The bearded old man can still be identified as Saturn. If, however, this quotation actually recalls details from the "celestial flood" of 2349 BC, then the bearded old man is Jupiter, with his mountain perhaps identified as a beard.

At the end of Book 2 of the Maya *Chilam Balam*, there is a short disconnected section which obviously recalls the event of the "flood of Noah." It includes the line:

"And the face of the sun was corroded, and its face became darkened and was put out. And then, above, they became frightened. 'It has burned up! Our god has died!' their priests said. And they were beginning to think about making a picture of the figure of the sun, when the earth shook and they saw the moon."

-- Antonio Mediz Bolio, *Books of the Chilam Balam of Chumayel* (1930)

The Moon was noticed. The shock may have referred to the contact with Venus, or it may indeed have represented the first touching of the Earth's plasmasphere and the plasmasphere of the Moon. The shock might account for an alteration in the orbit of the Moon which would start it circling around the Earth. [\[note 11\]](#)

It is possible that all of this is conjecture -- that the Moon never had an atmosphere. But the concept of a planet-wide fire is reinforced by the fact that Jupiter caught fire soon after the supposed fire on the Moon. The fire of the Moon I have here dated to 2205 BC, although it could more likely be 2193 BC.

The fire at Jupiter I am dating (further below) to 2150 BC. Rockenbach, in *De Cometis Tractatus Novus Methodicus* (AD 1602), places this event in 2060 BC, a hundred years later, and identifies it as the Tower of Babel incident. The Tower of Babel event which was actually well remembered was the flaming up of Mercury in 686 BC.

The Flood from the Sky

There was no "flood of Noah" in terrestrial terms. It all happened in the heavens, although the destruction of the Absu must have caused violent hurricanes, storms, rains, and thunder -- certainly for weeks or months. And, not to be neglected, we should recognize the flattening and raising of the Tibetan Plateau, and the subsequent path of earthquakes and seismic destruction traced through the Eastern Mediterranean into North Africa. [\[note 12\]](#)

The seismic disturbances were experienced in 2349 BC as Venus started to pass Earth on an inner orbit. As both Earth and Venus lined up with the Sun, the plasmaspheres would have touched, and suddenly the crust of the Earth would have experienced a repulsive force. The force would have been experienced on the hemisphere facing Venus, since the Earth's exterior surface distribution of electric charge in effect makes the interior of the Earth (and thus the other hemisphere) opaque to an electric field exterior to the Earth.

Because of the sudden onset, a stupendous seismic shock would have traveled around the world. At the location facing Venus, the crust would have been depressed, resulting in an uplift of the crust in adjacent areas. As the Earth continued to rotate, the region of the depression would have continued to move toward the southwest, although the force would very rapidly diminish as an opposing electric charge was induced at the facing sides of both planets.

The effect of the forces at the crust would be mechanically transmitted to the mass of the Earth, in a direction away from the Sun, thus relocating Earth to a different orbit.

Unlike gravitational forces, which act (equivalently) through the centerpoint of the Earth and therefore have no effect on the Earth's spin, if the electric forces were even slightly offset from the center, the Earth would have reacted like a gyroscope to the externally applied torque -- swinging the axis through a circle in response to a tilt the Earth's axis.

Venus, because of the extremely heavy atmosphere which carries its electric charge, would react very differently, absorbing and distributing the repulsive forces around the planet. Venus's orbit might not be significantly affected. (I have expanded on this and added some approximate calculations in Appendix B, "The Celestial Mechanics.")

There are indications of undetermined catastrophes in this era in many locations in the world. I think these can be attributed to the earthquakes due the initial electric repulsive shock (but not due to the swing of the Earth's axis) which traveled as a seismic wave around the Earth, plus a following attractive exterior force, applied as the Earth continued to rotate, which would have uplifted the surface in the next sector of Earth to come into alignment with Venus. This was followed somewhat later by the arrival of a series of plasmoid lightning bolts from Venus. It is this last which resulted in the hurricanes and torrential rains which have been identified as the Flood of Noah. [\[note 13\]](#)

But the crisis in religious concepts and the loss of a worldview was much more important and cannot be neglected. For a second time, the structure of the Universe had been radically altered. The removal of the Gods would be nearly complete when Jupiter, who had stood in the sky as the Midnight Sun, was permanently "taken away" 200 years later, in about 2150 BC.

As I noted in the previous chapter, sometime after about 2400 BC construction stopped on barrow graves and (mostly) on henges. Only the single-inhumation Round Barrows continued in use. The Long Barrow and Passage Graves were discontinued. After the fall of the Absu it must have become obvious that the south sky was filled with stars, and there was no place for the mound or the island to where the dead were transported in the past. The southern sky was as empty as the northern sky.

The construction of Stonehenge was interrupted for 200 years after 2400 BC, a date which should probably be equated to 2349 BC. But there is no interruption of activity in Egypt or Mesopotamia -- not until 156 years later, after 2193 BC. [\[note 14\]](#)

For the date of "Noah's flood" political events in the Eastern Mediterranean region do not seem to reflect a problem. It seems there was no apparent damage in Egypt or Sumer, despite the best efforts of chronographers to locate a "flood of Noah" at that time. What we know with certainty is that in 2193 BC, 156 years after the "flood of Noah," a worldwide catastrophe brought the civilizations of Egypt and Akkad to a halt and caused the eventual demise of the

Harappan culture in the Indus valley by 1900 BC. The island of Malta was completely depopulated after circa 2200 BC. Malta may have fallen directly under the strike path of an arc from Venus in 2193 BC.

... the Conquests of Sargon

There is no evidence for a flood in 2349 BC in Mesopotamia. This is underscored by the conquest undertaken by Sargon of Akkad almost directly after the "flood event" of 2349 BC. His conquests produce the largest empire seen in the world to that time, comprising the subjugation of Elam in Persia, Sumer located south of Akkad, Southern Anatolia (Syria), and the coastal cities of the Northern Levant -- an empire extending from the Persian Gulf to the Mediterranean Sea.

Considering that the later event of 2193 BC caused the collapse of political systems worldwide, lasting 200 years, we could suggest that Sargon started his armies on the march almost directly after the "flood event" of 2349 BC. Had there been a worldwide flood or a similar catastrophe, would not Akkad, located directly north of Sumer, also have been affected? Instead, Sargon seems to have taken advantage of the jolt by Venus and the religious paralysis of Sumer. His patron Goddess was Ishtar, Venus.

We have no contemporaneous records of Sargon, only tales and legends recalled in Babylon a thousand years later. We do know, however, that he appointed his daughter and granddaughter as priestesses of the Moon god Nana of the Sumerian city of Ur. Hymns by one of the priestesses have been preserved.

... the Flood in China

The Chinese flood is mentioned in the first book of the *Annals of Shu*, the Chinese historical record dating to 2357 BC. It speaks of a flood which "stood above the mountains." This cannot be anything other than the Absu. What waters will stand up above the mountains? The rains and storms, however, were real. (Incidentally, Psalm 104:6 reads, "the waters stood above the mountain.")

A person named Khwan, during the reign of Yao (Yâo), spent 9 years on the project of draining the waters from the valleys. His son Yu was hired and in turn spends 9 years on drainage. Yu is possibly a real person, and is the first king of the Xia dynasty which started about 150 years later, in 2205 BC.

The second book of the *Annals of Shu* recalls the work of Yu. Among the records on his assigned task of gathering an inventory of the resources of the land, is the following note:

"Being sent to the great plains at the foot of the mountains, notwithstanding the tempests of wind, thunder, and rain, he did not go astray."

Chinese history does not deal with the weather. It is unusual to find this anecdote.

Yao existed, it was estimated in circa 200 BC, from 2357 BC to 2255 BC, for some 100 years spanning what would be the date of Noah's flood in 2349 BC. Yao is Jupiter, and his initial date of first showing should be set at 2349 BC. Yao shared the throne with Shun during his last 30 years. His "death" in 2255 seems to be off by 100 years from better Bible, Mesopotamian, and Mesoamerican chronology. His reign should be around 200 years.

Shun clearly is the Moon, spending all of his time on monthly inspection trips, as described in the *Annals of Shu*, which even records that his inspection tours all start on the first day of the month.

The ending date for the reign of Shun, the Moon, is 2205 BC. This is 110 years after the Moon's birth, 144 years after the "flood of Noah." When Shun (the Moon) "dies" in 2205 BC, Yu, who had been employed by him in the administration of the land, becomes the first king of the Xia dynasty -- in time for the dry spell starting in 2193 BC. [\[note 15\]](#)

The much earlier flood of 3147 BC, which had come from the South Pole and the South Pacific, was not recalled by the Chinese. Perhaps because of the width of the Pacific adjacent to China. Siberians remember a flood, but it came from the north, spread over the land, and then rolled back to the polar sea. This it may have been a rebounding wave.

For China it is the "flood" of 2349 BC which stood out, and although this "flood" was celestial in nature, it would have been accompanied by severe wet weather and heavy rains. Chinese history started with the aftermath of this "flood" when organized reclamation (needed because of the rains) was initiated by Khwan and later by Yu.

... the Temple Inscriptions at Palenque

The Maya temple inscriptions at Palenque in the Yucatan (circa AD 700) are one of only three Maya references to world history. The inscriptions place the birth of Venus, Mars, and Jupiter in 2360 BC. The Moon, "Lady Beastie," is their mother. The implication is that these planets became clearly visible when half of the ecliptic no longer dipped into the Absu to be obscured by the rings. Or so I would think. There is another, more elegant, solution also.

The date of 2360 BC (based on the Long Count) is earlier than the start of the "flood of Noah" in 2349 BC. It has been presumed that the dates of the carved texts for the birth dates of the three planets (November 8, October 21, and October 25) were selected to have a congruence of qualities so that they "matched" later dates used to argue the legitimacy of the ruler who erected the temples. They are not to be considered as dead accurate. However, the era (Baktun) and double-decade (Katun) were most likely completely correct. The dates were retrocalculated in AD 700 based on the Long Count and on a year of 365.24 days.

To correspond to a true solar year (which is the "calendar" used throughout these pages), rather than a Gregorian calendar year, the Long Count dates of Palenque should be moved forward in time by about 22 years. Thus 2360 BC of the inscriptions, which precedes the flood of Noah, becomes 2337 BC which follows the flood of Noah by 13 years. [\[note 16\]](#)

Another hint that the events of 2360 BC have reference to the flood of Noah, is the transcription of the glyphs of one of the temples, the Temple of the Cross, which transliterates as:

*"753 years and 12 months after
[that is, after February 5, 3112 BC]
GI-prime [Saturn] had set the wac chan
[the World Tree house of the north,
mentioned in detail earlier]
and then the matawil person was born."*

*"On October 21, 2360 BC, the matawil,
the blood of Lady Beastie,
touched the earth."*

The first paragraph follows the detail of the displacement of Saturn from the north polar region to the ecliptic of the south. "The World Tree house of the north" is likely the northern polar plume after 3147 BC. The retrocalculated date

of February 5, 3112 BC, for the appearance of Saturn in the ecliptic of the south sky, is about right. (It is a year a half after the end of the era of the Gods, retrocalculated by Palenque as 3114 BC.) And then the "matawil person" was born.

Who or what is *the matawil*? Freidel and Schele have determined that Lady Beastie is the Moon, or the "First Mother" and this is generally accepted. They have *the matawil* as Venus. I'm not so sure. They translate the last line into readable English as:

*"On October 21, 2360 BC, GI [Venus]
the child of Lady Beastie, was born."*

It is a reasonable guess, considering that Freidel and Schele, like all archaeologists, have absolutely no clue as to what is really going on, and just assume the Maya were making up Gods to fill out a creation epic of sorts. Others have suggested that *the matawil* is a place. Some assume it is the dark space at the center of the Milky Way. Yet others hold that it might be closely associated with Palenque, in being a toponym for Palenque (the Spanish called the site *Palenque*, fortress).

I would think that *the matawil* might represent the doorway or gap in the "House of Bushes," as the *Chilam Balam* calls the Absu. Alternately I would suggest that it may represent all of the Absu. Then "the blood of Lady Beastie touched the earth" represents the fall of the Absu rather than meaning "the child of Lady Beastie" although "touched the earth" commonly is a phrase meaning "was born" in Chol.

Text at the doorways of the three temples reads as follows:

*"On October 21, 2360 BC,
GI [Venus], the matawil, touched the earth;"
"On November 8, 2360 BC,
GII [Mars], the matawil, touched the earth;"
"On October 25, 2360 BC,
GIII [Jupiter], the matawil, touched the earth."*

GI, GII, and GIII represent Venus, Mars, and Jupiter, following their dates of birth. This does not resolve what "the matawil" is. "The matawil" also follows the naming of Lady Beastie. In fact, we do not know if it should be presented as an ellipsis as in this translation, or if it should be understood as an adjective, a

noun, or some other word form. If Lady Beastie is then the Moon, why was she born in the previous era, that is, before 3114 BC?

The Moon certainly would have been visible before 3114 BC, although only periodically, and seen at a considerable distance, often looking more like a star. But, considering that the temple inscriptions at Palenque also place the birth of Saturn, as a pure fiction, in 3122 BC and, like the birth of Lady Beastie, also before 3114 BC, it might be suggested that these two births and the implied marriage are just made up to suit the situation.

Also we cannot neglect that the Greeks, starting with Hesiod, held that the Moon preceded the births of all the other planets. We know that this isn't true. But what would have looked very much like the Moon at the earliest times would have been the lighted face of Jupiter, which was at a distance from Earth to make it look about the size of the later real Moon, or, as I have also pointed out, as an egg (and as recorded in pottery by Neolithic Mediterranean cultures since remotest times, as presented by Marija Gimbutas).

The Moon, as Lady Beastie, "lets blood" in 2325 BC (corrected to 2302.3 BC), a date separate from the 2360 BC event, when her "blood touched the Earth." Bloodletting is a trance ceremony of the Maya, used to commune with ancestors. Is this a plasma display of the Moon?

The Palenque inscriptions next claim that in 2305 BC (corrected to 2282.6 BC) the Moon crowns herself ruler. The inscriptions at Palenque were used to establish the legitimacy of the claim to rule by the Ahau of Palenque, who had attained his position through a matriarchal line. The inscriptions were meant to show that there was ancient precedent for this, for the celestial Gods also trace their ancestry through a woman ruler, the Moon. Frankly, I do not know how the concept of "rulership" might relate to the Moon in physical terms. The *Annals of Shu* claim 2287 BC as the year in which Shun (the Moon) joins Yao on the throne. At least it is an interesting near coincidence. [\[note 17\]](#)

The date of the Palenque inscriptions can be compared against the estimates listed in the *Annals of Shu*, as follows:

Palenque inscriptions			Annals of Shu	
event	inscribed	corrected	event	dated
Moon shows	2360 BC	2336.8 BC	birth of Shun	2318 BC
Moon bleeds	2325 BC	2302.3 BC		

Moon rules	2305 BC	2282.6 BC	Shun employed	2287 BC
			Yao dies	2257 BC
			Shun dies	2205 BC

... the *Chilam Balam*

There are also two mentions of the arrival of the Moon in the 16th century AD Maya *Books of the Chilam Balam of Chumayel*. The texts were transcribed from much older glyphic bark books. In Book 10 there is mention of the fall of the Absu, as the water which fell from the "center of the sky." Mention is made of the establishment of the intersection of the ecliptic and the last ring of the Absu, and that the Pleiades first showed above this intersection. Importantly, the arrival of the Moon is mentioned, although obliquely, in Book 10. I will elucidate the Chilam Balam in the chapters "The Chilam Balam" and "The Olmec Record of the Past."

The events of the *Chilam Balam* are listed by the names of Katuns, thus dating events to spans of 20 years. We have to supply the corresponding Baktun, that is, we have to guess the longer era of 400-Tun periods that a Katun falls in. All except one of the Katun dates of the *Chilam Balam* match the records from other sources -- or span the dates of these other sources outside of Mesoamerica. The dates need to be corrected in a different manner than the dates from Palenque. The text clearly recounts (among other celestial events) the 24th century BC, although listed wildly out of order. [\[note 18\]](#)

The Lifetime of Abraham

Abraham is variously dated anywhere from 2026 BC (534 years before the Exodus of 1492 BC) to 1271 BC (1876 years after the flood of 3147 BC). Traditional Bible chronology dates Abraham from 1812 BC to 1637 BC. In Appendix A, "Chronology Notes" I equate Abraham with Gilgamesh, but it would be more correct to equate Abraham with Jupiter. Some scholars have also equated Abraham with the Moon, or Moon-worship. Actually, I would suggest that the first orbiting of the Moon might have been used by the Bible editors to establish a 175-year life-span for Abraham. The first showing of the Moon might be 2325 BC. The demise of Jupiter is 2150 BC. This is 175 years, although here the date of 2325 BC is an estimate.

Most Bible chronologists placed the birth of Abraham in 1900 or 1800 so that Abraham could have forefathers between himself and Noah, in fact, ten

generations. As I mentioned earlier, all except the first and last of these 10 generations (in the Bible) were sired when their father was 29, 30, 32, or 35 years old. These are also my estimates of the intervals between appearances of Mars during the earlier period of 3147 to 2750 BC. The forebears of the Sumerian Gilgamesh (the kings of Kish in pairs) are spaced likewise. The Bible is a mix of events from different eras, which holds the "flood" of 2349 BC as the world flood, but derives all its other information from earlier eras.

It makes most sense to equate Abraham with Jupiter. The birth of Abraham then is in 2349 BC. His death is 199 years later, in 2150 BC. I have used these two dates as anchor points in developing the chronology of Jupiter.

The Assyriologists P.J. Wiseman, in *New Discoveries in Babylonia about Genesis* (1936), and D.J. Wiseman, in *Ancient Records and the Structure of Genesis* (1958), proposed that Genesis is a series of separate records, copied and collated by Moses, each ending in a colophonic phrase, like "these are the generations of Noah," called "Toledoth" in Hebrew. These recap what has been written up to that point (this happens 15 times) like a signature by the person who is supplying the record. At each of the 15 colophons, the writer is still alive, but nothing more is heard of him in the following text, except his age at death, which is related by the next writer. There is one notable exception: Abraham.

Who would doubt, however, that the most "prominent" individual in the Book of Genesis is Abraham? He, more than all the other great Patriarchs, would be entitled to be named in a Toledoth. ... "Yet", as Wiseman had observed, "it is remarkable that while lesser persons such as Ishmael and Esau are mentioned, there is no such Toledoth phrase as 'These are the generations of Abraham'"

-- from California Institute for Ancient Studies

That would present a problem for Bible chronologists, for Abraham needed parentage, being ten generations from Noah and the Noachian flood. The ten generations after the flood is correct, if the flood is understood as the worldwide flood of 3147 BC. The ten generations are the recalled ten appearances of Mars between 3067 BC and circa 2750 BC.

Bible chronologists, using a "flood" set at 2349 BC by Ussher, were thus forced to make Abraham first appear some 300 years later, variously in 1900 BC to 1800 BC. Ussher uses 1976 BC to 1801 BC, 175 years.

The Extinction of Jupiter

I estimate that Jupiter extinguished sometime in the era after the "flood of Noah," possibly in 2259 BC, as the *Annals of Shu* claims, although I am more comfortable with a date of 2150 BC, the end of the 199-year life span of Abraham (as Jupiter) since 2349 BC. The large coma of Jupiter would, at any rate, have come to an end as the planet slowed its retreat from the Sun on reaching its final orbital destination and, once at that destination, its electric potential started to match the electric field of the Sun at that remote distance. At first the glow mode discharge would have simply diminished as the flow of plasma decreased. Then Jupiter would have experienced a sudden change from glow mode to dark mode plasma discharge, as plasma flows do when switching between modes.

There is a planet fire recorded in the *Chilam Balam*. The text of Book 10 reads, as a concluding line to a description of Jupiter:

"Suddenly on high fire flamed up. The face of the sun was snatched away, taken from earth."

"This was his garment in his reign. This was the reason for mourning his power, at that time there was too much vigor."

The "face of the sun" is Jupiter, the Midnight Sun -- "Lord Sun" of the Maya. The "excess vigor" might be translated as "commotion" as if to suggest that the effects were experienced on Earth. They were not, except for the religious changes -- the sense that their god had been removed from near Earth to a far off distance, as it diminished to the size of a star.

The *Chilam Balam* seems to date the extinction of Jupiter to a Katun 8-Ahau (as seems most likely), placing this event in 2167 to 2147 BC, which matches the extra-Biblical date 2150 BC which I am using from other sources.

Of the other sources, the first is the portion of the *Annals of Shu* compiled during the Xia dynasty. The Xia dynasty has other records of events noted to be contemporary with the events, that is, not "mythological" (the "mythological" records read, "Looking into antiquity, we find...").

Under the Xia we are getting descriptions from sensible Chinese humans, who could care less of stars and planets, writing, however, that there was "a celestial phenomenon" in about 2153 BC. This is recorded in Book IV, "The Punitive

Expedition of Yin," of Part III, "The Books of the Hsia [Xia]." James Legge records that, *"This Book is another of the 'Speeches' of the Shu, belonging to the reign of Kung Khang, a brother of Thai Khang, the fourth of the kings of Shang (B.C. 2159-2147)."*

The second source is a cuneiform tablet of Gudea (as discussed earlier), governor of the Sumerian city of Lagash in 2144 BC to 2124 BC, concerning a brightening -- the "overwhelming splendor" of Ningirsu, who "changes darkness into light" -- dated to the mid-2100's.

Ningirsu is Jupiter (although the name is also assigned to Saturn). Gudea was dedicated to Ningirsu, building him a temple and supplying weapons of war for the temple (Ningirsu is understood as a war-god, which is not characteristic of Saturn or of Jupiter). The building and dedication activities are probably an indication that Jupiter had disappeared altogether from the skies, and that Lagash was in trouble. The social reforms, return to traditions, and fervor of religiosity initiated by Gudea must reflect attempts to keep Lagash alive under the adverse condition of a disappeared God. This was also 50 years after the start of the agricultural failures of 2193 BC.

Having established that something spectacular happened around 2150 BC, the question next becomes, What happened?

Most likely Jupiter experienced a sudden change from glow mode to dark mode plasma discharge, which is how plasma flows behave. Since this involves a marked decrease in current flow, the driving voltage would have risen suddenly and could have resulted in a brief return to a much higher current rate -- a brief change to arc mode. After the sudden change to arc mode, Jupiter would again have dropped to dark mode, and been reduced to the size of a star.

This is regularly seen elsewhere in the Universe where stars repeatedly explode into brilliance and subside as they switch from arc mode to glow or dark mode. After the extinction, Jupiter would have all but disappeared from view, for in the final dark mode nothing would be seen of a coma.

The Midnight Sun had stood in the sky for nearly 1000 years, and with a huge coma for much of that time, and certainly the last 200 years. And for all that time there were no interactions with the Earth, except to disappear after some months and return again.

Then in 2150 BC it suddenly brightened and died, while in view of Earth. The Midnight Sun would have suddenly shrunk from a Moon-sized brilliant globe set on a mountain which lit up the night skies to just a bright star (still the brightest planet in the sky today). Since in the text above I have suggested that the burning of Jupiter could have been a switch from a failing glow mode plasma to arc mode, there is certainly a good possibility that it did indeed involve a planetary fire. A single location of an impinging plasma in arc mode could have set off the ignition of an absolutely massive fire as methane and hydrogen burned, engulfing the largest planet in the Solar System. It would have been spectacular. There are problems, of course, with the temperatures near absolute zero. But the striking of an electric arc raises the temperature locally by thousands of degrees.

The fact that the coma of Jupiter was red since leaving the asteroid belt could be indicative of low-level oxygen in an excited state, but it could also be hydrogen or methane. This would be an explosive combination, although not normally at utterly low temperatures. That might explain why this had not happened earlier. Perhaps the statement in the *Chilam Balam*, that "suddenly on high fire flamed up," should be taken at face value. This was not a coma in arc mode, it was flames. The same, of course, was said about the Tower of Babel.

The Career of Jupiter

The story of the flood of Noah is the story of the death and resurrection of the primary God of antiquity. It is a story which will be repeated and re-represented for the next 4,500 years -- to today. Let me present, then, the career of Jupiter in narrative form, and follow it with some background information.

At this point we will describe the complete career of Jupiter from before 3147 BC to its last giant flaming and extinction in about 2150 BC. The complete career of Jupiter, from the first time he was noticed in the skies is as follows:

- Before the end of the "Era of the Gods," 3147 BC, Jupiter was certainly seen, alternately as a moon-sized egg shape when Earth and Saturn were inside the orbit of Jupiter, and as an up-turned crescent shape when Earth and Saturn were outside Jupiter's orbit. The distortions in both instances were due to the fact that Earth was some three million miles (4.8 million km) below Saturn, and thus Jupiter was seen from a much lower

perspective (Saturn's orbit additionally dipped 1.3 million miles, 2 million km, below Jupiter's orbit at times.)

- The egg-shape shows up in pottery decorations during this period (the European Neolithic); the crescents less so. As I have pointed out previously, a painted pot of the Classical Maya era, depicted in *Maya Cosmos* by Freidel and Schele, presents the imagery of six Gods in council with a seventh and elder God. They are advising the seventh god to start creation.
- The seventh and elder God (God L) is easily identified as Jupiter as well as the Maya "First Father." The six Gods have various names, of which some are easily identified. God "Three Born Together" is obviously the three plasmoids of the south and God "Nine Footsteps" is Mars. Subtracting God "Three Born Together" of the south leaves the five Gods all associated with the polar configuration of the north as described in the *Popol Vuh*.
- The image on the pot illustrates, in somewhat different form, the conferences between the three gods of the south and the five gods of the north which are related extensively in the *Popol Vuh*. What is different here is that a seventh god is invoked, the old God L, who is without a doubt Jupiter, as can be derived from Classical Era iconography. What is amazing about this also is that the Maya, from their own sources, or from books derived from the Olmecs, would recall the primacy of Jupiter, dating back to the time of 10,900 BC.
- In the sculptures at Palenque (AD 700) Jupiter is also identified as one of the old-man gods holding up the "bleeding dragon" bar in the Temple of the Sun (a sculptured panel also called "the War Stack"). The Maya of Palenque were certainly aware of Jupiter as well as Saturn -- as specks in the sky -- as shown by the inscribed text (at Palenque) of a close conjunction on July 23, AD 690, of Jupiter, Saturn, Mars, and the Moon.
- In 3147 BC, Saturn and its companion planets passed by Jupiter, so that Jupiter was between Saturn and the Sun. Jupiter, on a smaller and faster orbit, caught up with Saturn and its companion planets. Once the plasmaspheres touched, electric interactions caused a massive electric shock, followed by electric arcing. The small planets Earth and Venus, were not involved in the interactions, probably because the reformed combined plasmasphere of the giant planets locked them out. [\[note 19\]](#)

- Certainly this involved the flow of plasma as gigantic interplanetary lightning bolts spanning millions of miles, but the most violent interaction would have been the electric attraction initiated as soon as the planets could first sense each other's electric fields. I am suggesting "attraction" here because Saturn and its companion planets would most likely still have been at a charge level (voltage) representing the far region of space outside of the Sun's plasmasphere. Only a condition of attractive forces could account for the relocation of all the large planets to the far reaches of the Solar System.
- The pulse would not have lasted long, for after receiving an impulse which disturbed the orbits of the four large planets, the planets separated and individual plasmaspheres would have formed again, in effect isolating them from each other. Jupiter must have been diverted from its normal orbit path, attracted to the Saturnian set on an outer orbit.
- The change in forward speed would normally have cast Jupiter completely out of solar system. But since Jupiter at some point does reach a stable orbital location, it has to be suggested that Jupiter's forward speed was modified by the planet's passage through the asteroid belt.
- Saturn, Neptune, and Uranus would have been yanked backwards from their normal orbital path. The initial attractive force must have been almost at right angles to their orbits, resulting in a greatly reduced forward (orbital) speed. The orbits which the Saturnian planets eventually settled into is related to their mass and to their distance from Jupiter at the first moments of electric contact. Their orbital speeds also were modified by passage through the asteroid belt.
- Jupiter, now under electric stresses because it was moving away from its former location near the Sun, produced a coma and a gigantic tail. Unlike comets, Jupiter's giant plasma flow appeared at the south geographic pole (the location of the north magnetic pole), with lesser plumes at the north pole. Jupiter's magnetic field is reversed from that of any of the other planets and is also ten times stronger than any other planet.
- The lower plasma tail became the mountain to which the people of Earth see Noah's ark moored. As we know from Egyptian sources and the Mesoamerican *Popol Vuh*, the mountain of Jupiter was colored green initially.

- The first view of Jupiter after the flood is recorded in Sumerian flood stories, in the Bible, and in hundreds of other "flood" myths. The Earth, traveling with Saturn, had passed behind Jupiter while located some three million miles (4.8 million km) below both planets. The vertical separation of the planets can easily be found from current orbital data. The initial vertical locations are discussed in Appendix B, "The Celestial Mechanics."

The view of Jupiter seen from Earth initially was of a bright crescent on the bottom of the globe. This was the view seen from far below Jupiter, seen about 45 degrees up from Earth. Only a crescent was seen, even though all of Jupiter's face was lighted by the Sun.

Humans at this time had no concept of the extended space away from the Earth. The concept of Earth and all the surrounding space was that of a land mass enclosed by an "ocean" in the south (the equatorial rings), and another region in the north where the river from paradise (the "real Earth") had been seen to flow toward the land of Middle Earth. It was like living at the bottom of a bowl.

A widening (green) plasma discharge in glow mode extended down from the crescent (from the south pole of Jupiter). From the perspective of Earth the crescent looked like the ship of Noah placed on the mountain where he had landed. Both the "ship" and the "mountain" which were seen at the end of the flood are ubiquitous elements of the 500 or more flood legends throughout the world.

The huge horned shape which had been seen approaching (or seen earlier and known about) was also identified in Egypt as the celestial bull who wrecked the city of the Gods -- he is shown as such on the Palette of Narmer, and one other palette from the same predynastic period, but, significantly, not on earlier cosmetic palettes. Jupiter also appears as the "bull of heaven" in the Mesopotamian *Epic of Gilgamesh*.

- As the Earth traveled further along its new orbit, the view of the battling planets (Jupiter, Saturn, Neptune, and Uranus) changed from an initial view from below to a side view of the same planets in the southern skies. Immediately after being released from the electric field of Saturn, the Earth would have changed its orbit so as to have the Sun again as one focus. The new orbital inclination to the equatorial of the Sun would be at a steep angle -- 7 degrees to the equator of the Sun. Within a half year the Earth would pass to above the equator of the Sun, and the people of Earth would

get a new point of view on the receding giant planets, now seen in the south sky at night. The rings of Saturn were now seen edge-on as Earth's orbit lifted past the equatorial of the Sun.

- The Maya *Chilam Balam* reads that Saturn was thrown on his back by Jupiter. This was the new view which saw the rings of Saturn edge-on. The first "pyramid texts" of Egypt state the same thing: that Osiris (Saturn) fell on his side and died -- at the riverbank. The riverbank is understood by later Egyptians as the bank of the Nile, but obviously the riverbank originally was the edge of the ecliptic.
- Both the Bible and the Sumerian flood legend record birds being released to test the abatement of the floodwaters. In the Sumerian version, the first two birds return. These were the bright Venus (the dove), and what would seem to be Mercury (identified in Sumer as a swallow) but more likely is the Moon (when it still had an atmosphere). Because Venus returned (being on an inner orbit), it was assumed that the Earth had not dried up yet. The third bird to be released is Uranus, as a dark raven. On an outer orbit, Uranus did not return.
- The Sumerian interpretation is different from the Bible story, where the raven is released first, but only the later return of the dove with an olive branch signifies that the Earth had dried up. (The earlier release of the raven in the Bible is much more correct to the celestial mechanics.) To Utnapishtim (the "Sumerian Noah"), it is actually the travels back and forth of the raven (Uranus) that signals that the waters had ebbed. Noah is not convinced until the dove (Venus) returns with an olive branch -- the green tail it had developed in taking its first turn around the Sun.
- Note that, in both flood stories, it is only a matter of weeks before the Earth has dried up and Noah and Utnapishtim would exit their arks (fourteen days in the Sumerian version, forty days in the Bible.) The flood from the south polar seas of the Earth was a singular event, sweeping across the land like a tsunami, and rolling back at once, but then sending secondary waves north.

The duration of the flood, as presented in the legends, is in agreement with the fact that Jupiter would soon be seen from a much greater distance (half way across the orbit of Earth, rather than only a few million miles), frontally lighted by the Sun, but now looking much smaller. To both Noah and Utnapishtim this sight is a fire lighted for a sacrifice to the Gods. Seen from upward to one AU (93,000,000 miles, 150,000,000 km) away from the

scene of the "collision," the planet Jupiter with its coma would have looked about the size of today's Moon, with the actual globe within the coma lighted by the Sun, and all of this still standing on its mountain, with wisps of plasma extending above the upper part of the coma -- seen as smoke of a sacrificial fire lit by Noah or Utnapishtim. The satellites of Jupiter orbited the fire.

*"I made an offering on the peak of the mountain:
The gods smelled a savor,
The gods smelled a sweet savor,
The gods gathered like flies over the sacrificer."*

-- Theophilus Pinches, translator, *The Religion of Babylonia and Assyria* (1890)

- Over the next few years Jupiter and Saturn, traveling at different orbital speeds, would be seen to pass each other as both planets receded from the Sun. It is unlikely that Saturn developed a plasma tail. Later Egyptian legends speak of the casket of Osiris (here Saturn) drifting out to sea (the Duat again). An image of a casket is possible if Saturn had a plasma tail, but I seriously doubt if this was ever so. The casket thus more likely is Jupiter.

Osiris in his casket drifted out to sea, and north to Biblos (which was an Egyptian port of trade in Lebanon), and became lodged in a tree -- the north polar plasma column -- after which not much more of Saturn is seen at all in the sky, having by this time perhaps distanced itself considerably. There are, of course, later tales of Isis removing Osiris from the trunk of this tree.

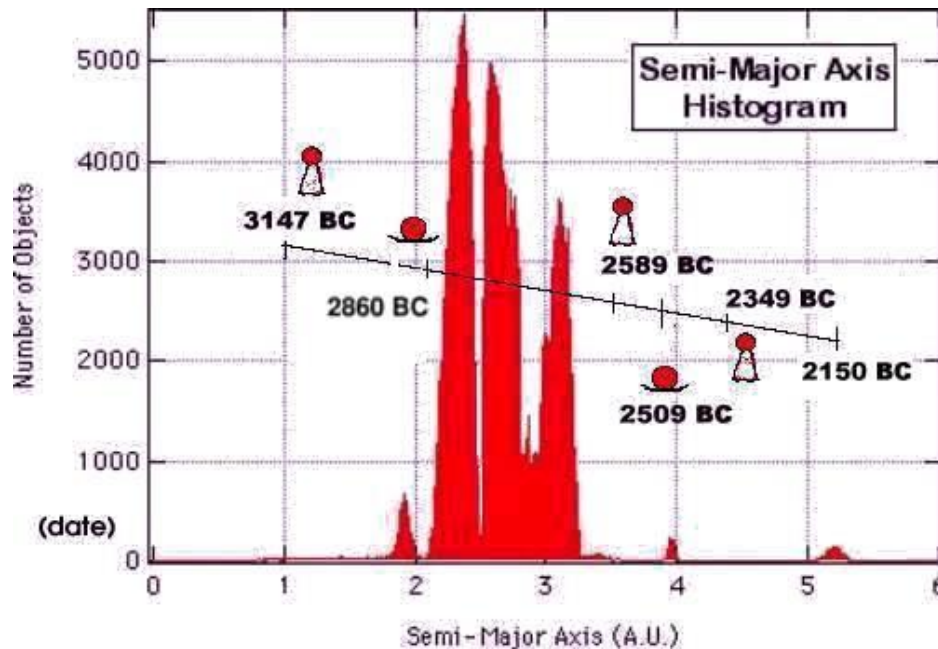
- The engagement of Jupiter and Saturn could certainly not have lasted all that long, as they would soon become separated by their new spiraling orbits. We do know from some early depictions and late literary sources that there were frequent plasmoid thunderbolts between Jupiter and Saturn and the other Titans (and even originating from Venus), launched like missiles which landed with explosive effects. This may have lasted 80 years, although it is uncertain how much of this time period (assigned by the Egyptians) was occupied with "battle" and how much with "negotiations."
- The "negotiations" were the constant ranging of planets around the ecliptic followed by regrouping every few years near the slowest planets, Jupiter

and Saturn, something never seen before by humans. To the Egyptians, the planets, as Gods, were having meetings. For the Egyptians it was most important to again have a celestial king assigned as ruler of the lands, and thus they describe the "negotiations" in detail. The claims between Seth and Horus are described in details encompassing the plasma interactions of the planets and possibly the asteroid belt, but all of it described by the Egyptians as taking place in a swamp, the Duat. [\[note 20\]](#)

The remaining career of Jupiter can be followed with some confidence. This is not true of Saturn. Saturn must have been unremarkable looking, except when its rings were still seen, and now known to go also behind the planet. Saturn just seems to disappear from active mythology, although the planet was watched and tracked throughout all of antiquity, everywhere. Saturn soon would have been a tiny speck of light among the stars (and moving very slowly). [\[note 21\]](#)

The Asteroid Belt

Jupiter took on the role of Osiris after Saturn disappeared from view. He is understood as mummified, standing up in the sky, with his mantle reaching down to the horizon. The toroidal equatorial plasma form produced what looked like two eyes staring back to Earth. Jupiter would have looked gigantic until it reached the first objects of the asteroid belt at about 2 AU. That would have taken perhaps 300 years after 3147 BC. A period of 288 years is a calculation based on a linear regression of Jupiter from the Sun (see the chart further below).



[Image: "Histogram of the semi-major axis of asteroid objects; and path of Jupiter between 3147 BC and 2150 BC. The left ordinate represents both the number of asteroids and also the date, as BC, in the previous era." (Data: <ftp://lowell.edu/pub/elgb/astorb.html>. Plotted at case.edu/sjr16/; Information for 336,341 asteroids. Additional graphics for Jupiter added.)]

- On reaching the asteroid belt the coma did not need to be particularly large and its lower mountain form would have shrunk to a plasma pouring sideways from the bottom of the globe, since electric contact could be made to the 300,000 or more asteroids (some suggest millions) which occupy the belt between 2 and 3.5 AU, plus all the dust already in place because of the passage of three other giant planets.
- Jupiter may have dimmed and then brightened again in passing through the leading clump of asteroids. By chance, my calculated date of the disappearance of Jupiter into the asteroid belt (2860 BC) is nearly the same (2890 BC) as the date of the end of the first dynasty of pharaohs. Egyptologists cannot find a cause for the change between Dynasty I and Dynasty II. If my suggested dates are even reasonably accurate, then I could suggest that the change in dynasties was due to a religious crisis of immeasurable proportions: the mummy of Osiris had disappeared.

Jupiter eventually was displaced to 5.2 AU from the Sun. If Jupiter had started its recession at 0.7 AU (as I will suggest later), it would have moved at a rate of

221.5 years per AU. This is plotted on the chart below.

The career of Jupiter			
Note: the locations and dates are approximate, based on date = 3147 - (location - 0.7 AU) * rate of recession			
Note: dates revised about 15 percent 2/2011			
event, location	event date	concurrent look	period of time
-----	-----	-----	-----
starting location from 0.7 AU	3147 BC	mountain form	~288 yrs
start of asteroid belt, ~2.0 AU	2859 BC	shen form	~332
end of main asteroid belt, ~3.5 AU	2527 BC	mountain form	~89
last set of asteroids at ~3.9 - 4 AU	ca 2438 BC	return of shen	~89
fall of the Absu at 4.3 AU **	2349 BC	mountain form	
another interruption ?	ca 2337 BC	extinguished? Moon shows?	
	ca 2283 BC	Moon in orbit, mountain form?	
at 5.2 AU location	ca 2150 BC	end of travel, extinguished	
The linear rate of recession is based on (3147 - 2150)/(5.2 AU - 0.7 AU) = 221.5 years per AU.			
** location calculated			

In the above chart the date of 2349 BC was set, and the location for this was calculated. The return of the mountain form in 2349 BC was due to the giant plasmoid from Venus. There may be a progressive error in this chart as Jupiter recedes further from the Sun because I have used a constant rate of radial recession. This may not be justified.

The date of 2150 BC, when Jupiter reached 5.2 AU in this linear model, is fairly well supported from a number of sources. The distribution of the semi-major axis of the asteroid objects shown in the graph above represents today's conditions. There is no reason to believe that most of the asteroids were not in approximately the same location from the Sun 5000 years ago as they are today.

The exception certainly are the two sets of asteroids (the Trojans and the Greeks) which are today located at 5.2 AU, in the orbit of Jupiter, and displaced about 60 degrees from the planet. These are thought to have been distributed to these Lagrangian points (gravitational minimums) of Jupiter's orbit through gravitational interactions with Jupiter over the last 4 billion years. Nothing explains why these asteroids are still there and are as widely distributed about these locations, except that they have only recently arrived at these locations.

Their location far removed from the main mass of the other asteroids is also peculiar. It certainly suggests that these are remnants of asteroids from the asteroid belt which were gravitationally removed by the movement of Jupiter through the Asteroid belt. That might also explain the paucity of asteroids near the end of the Asteroid Belt at about 3.9 to 4 AU, for on the basis of "historical" evidence, there should have been considerably more asteroids at the location of 3.9 to 4 AU, since Jupiter seemed to have again lost its coma and tail at this location, corresponding to a time 100 years before the "flood" of Noah in 2349 BC.

Surprisingly, some "Trojan" asteroids have been found for the transjovian planets, suggesting that these also were removed from the asteroid belt with the movement of these planets through the belt. These Trojans are far fewer than the 1500 or more which follow Jupiter. But then, Jupiter has more mass than Saturn, Neptune, and Uranus combined. Six Trojans have also been found to follow Mars, and Trojans are suspected for Earth. (The first Trojan to be associated with Earth was announced in 2011.)

- The peculiar gaps in the Asteroid belt are due entirely to the action of gravitational forces of Jupiter over the span of 5000 years, but the same gaps would also result if Jupiter had been on an inner orbit since the breakup of most of the asteroids about 3.2 million years ago. This is discussed in more detail in Appendix B, "The Celestial Mechanics."
- The asteroids represent an estimated total mass of 1×10^{22} kg. This is very little -- about 12 percent of the mass of the Moon. The majority of asteroids are of the chondrite variety, that is, they are rocky, and have a break-up date of 3.2 million years ago. The rocky composition suggests a smaller planet rather than a planet large enough to have had a metallic core. But this also suggests that, at the time Saturn and Jupiter passed through the asteroid belt, there would still have been much more material than what remains today.

- Additionally, every plasma contact with the asteroids would have generated additional positively charged fine dust to be electrically repelled and launched into the space between the asteroids. The fireworks must have been spectacular. It should be apparent that the fine dust would have supported a continuous plasma flow from Jupiter.
- The asteroids represent planets which were part of the original Solar System. As the remnants of exploded Moon-sized planets there might have been fewer asteroids and the fragments might have been larger. Much of the debris could have dated back millions of years, as can be ascertained from the break-up ages of meteorites ("meteorites" are asteroids which have fallen to Earth) -- 3.2 million years for the Chondrite meteorites, 100 and 700 million years for the iron meteorites. The various meteorites have a creation date (as opposed to their "breakup" age) of 4.4 and 4.6 billion years ago. As planets these may have orbited the Sun since the remotest times.
- Jupiter was not likely the cause of the breakup, first of all because (as developed here) the asteroids were in their location long before Jupiter passed through them after 3147 BC, and secondly because the pre-asteroid planets would have been at a charge level appropriate for their location from the Sun if they had been orbiting the Sun since their creation 4.4 to 4.6 billion years ago. Saturn, however, when repeatedly entering the Solar System at the potential (charge level) of deep space, would have been quite capable of electrically causing the breakups.
- But because Saturn would initially have traveled on a steep trajectory (I am assuming), the 20 entries into the Solar System would have done considerably less damage than the movement of the four planets away from the Sun after 3147 BC, which were on spiral paths -- resulting in much greater contact with the asteroid belt at that time. As noted above, the most recent breakup age for asteroids is 3.2 mya. This corresponds to what I have assumed to be the last entry of Saturn into the Solar System.
- Although it is here suggested that the breakup ages of many meteorites should be on the order of 5000 years, it should be understood that the mainstream Establishment researchers would delete any such data as measurement errors. Recent breakup ages would not likely be admitted.
- Initially, on reaching the asteroid belt, Jupiter would have discharged via plasmoid thunderbolts. This is the second battle of Zeus described by

Hesiod, where various monsters are attacked. The plasmoids are visually described in the name tags of the predynastic king Narmer of Egypt (circa 3050 BC). "Narmer" translates as "catfish-drill." Plasmoids have all the looks of catfish, and a drill is a stone-working tool which stirs up clouds of dust in its application.

- The asteroid belt initially consisted mostly of rock fragments with some dust intermingled. Only after considerable additional dust had been created by the first massive plasmoids lightning bolts of Jupiter, would this activity subside to a more continuous stream of plasma. In the meantime, the dust and the asteroid objects must have taken on monstrous shapes. The dust remained for some 4900 years, lit by the Sun, and defined the ecliptic as the road of the Gods until very recent times.
- Jupiter would have entered the asteroid belt at an estimated date of 2860 BC. Once inside the asteroid belt, the electric discharges moved "sideways" from Jupiter -- from the north magnetic pole at the bottom of the planet, to the nearby asteroids and the clouds of particulate matter created in earlier discharges. The plasma in glow mode would follow the magnetic field lines and be directed to the dust of the asteroid belt from the south geographic pole. (This would have primarily been an inflow of electrons directed to Jupiter, but also an outflow of protons and other disassociated ions.)
- Seen from Earth, Jupiter thus would have looked like a red disk seated on a plane below its coma while within the asteroid belt. A symbol for this, first dated from the third dynasty (after circa 2850 BC), is the "shen," a circle placed on a line, often made to look like a rope, that is, with a set of knots at the bottom. The same symbol is used from the end of the same third dynasty as the "cartouche" used to write the names of pharaohs.



[*Left Image: Shamash holding a shen; Mesopotamian seal. After Wikipedia;*
Right Image: Egyptian carved shen symbol. After
globalegyptianmuseum.org.]

- Images similar to the "shen" are found in Babylonia (above). Some Egyptian variations of the "shen" have "hairs" at the top and bottom of the circle. This completes the look of a plasma discharge from the magnetic poles, with the north geographic pole supporting a much lesser amount.
- The Egyptian crown of Re (Jupiter) and Amun-Ra (Jupiter as "the hidden sun"), is depicted as a red globe above nearly horizontal twisted ram's horns. A frequent depiction of the "shen" is with the circle filled in solid red, which would represent the mostly spherical coma of the planet. The *Chilam Balam* states that Bolon-ti-ku (Jupiter) was red when he "sat" in rulership.

"Red was the mat on which Bolon-ti-ku [Jupiter] sat. His buttock is sharply rounded, as he sits on his mat."

- Notice that Jupiter has changed color after exiting from the asteroid belt. He was green originally (or the tail was) when he moved into the south skies after 3147 BC, which is how the mummified body of Osiris was always depicted. But on entering the asteroid belt and later, Jupiter lost its green mantle and the coma turned red.

Special thanks to J Brookes for suggestions on the cratered back of the Moon.

Endnotes

Note 1 --

Since there is no record from antiquity for rings of Jupiter or the Titans, it is likely that the current rings of these planets were acquired from dust in the asteroid belt. This might also explain why Mercury has no rings, since I do not think Mercury ever entered the asteroid belt, although its original orbit extended that far.

It is suspected that the magnetic field of Mercury is induced in its travels between perihelion and aphelion, which doubles its orbital radius in each 88-day circuit around the Sun. This would move it alternately into two considerably different regions of the electric field of the Sun.

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Note 2 --

There was a doorway, caused by the Earth's shadow on the rings.

To have the rings come close together at the east and west cardinal direction would depend on having an unobstructed view of the horizon at sea level. Of course the rings were seen to move differentially with respect to each other. This would certainly take away from the image of the house of a God as a stable object.

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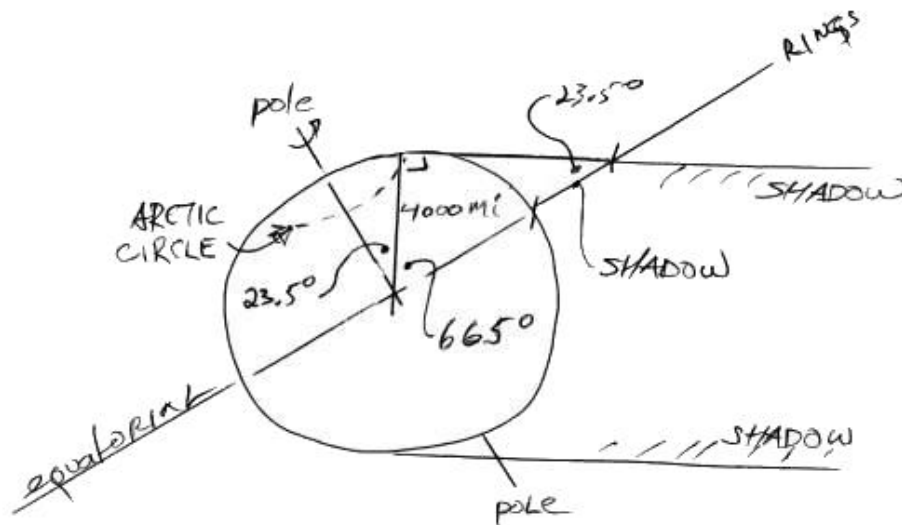
Note 3 --

That the number of rings should increase with high latitudes is a discrepancy I cannot explain. Nine rings are also noted for some Northern European locations, and possibly in India (where the latitude of the observations is not at all clear).

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Note 4 --

In summer, at the solstice, with the Earth tilted at 23.5 degrees toward the Sun, the shadow will be found to extend 6000 miles (9600 km) onto the disk of the rings from the equator, $4000/\sin(23.5) - 4000 = 6031 \text{ mi}$, using 4000 miles as the radius of the Earth, and be shaped as a semicircle. In winter the shadow is actually cast on the bottom of the rings, but visually the results would be the same.



[Image: Earth's shadow on the equatorial rings at summer solstice. Illustration by J. Cook.]

This is the minimum dimension for the portal. As the spring or fall equinox approached the shadow would lengthen to become infinite. If the rings extended less than 6000 miles (9600 km) from the surface of the Earth at the equator, there would always be a gap (rather than an oval shadow). However, I have shown in an earlier chapter that I would expect the rings to extend about 8500 miles (13,600 km) above the Earth's equator.

In a later chapter I develop the idea that the Earth's axial inclination (to the normal of the orbital plane) was 30 degrees before 685 BC. I should note the results here. At an axial inclination of 30 degrees, the shadow will be found to extend only 4000 miles (6,400 km) onto the disk of the equatorial rings, $4000/\sin(30) - 4000 = 4000$ mi in mid-summer and mid-winter. Again, the shadow would extend infinitely at the time of the equinoxes.

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Note 5 --

The beam of the ecliptic would connect the left and right edges of the Absu or Duat only at the time of year near the equinoxes. The ecliptic would dip into the rings at the autumnal equinox and rise out of the rings at the vernal equinox. The portion of the ecliptic behind the shadowed rings would be obscured, except for bright planets. In summer (at night) the ecliptic would disappear behind the Absu, and in winter be placed above the Absu -- as with the Moon and planets

today, which travel high in the winter night sky and low in the summer. The post and beam "gates" in China are said to be imported with Buddhism after AD 200.

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Note 6 --

The construction of a ballcourt -- a flat plane between stepped pyramids or inclined embankments -- is derived in Mesoamerica from descriptions recorded in ancient glyphic books, not from directly remembered experiences. It is a view of the trapezoidal gap in the Absu at the time of the equinoxes, which disregards the fact that the left and right embankments were probably not visible at the same time. The central playing field of the horizontal space between the embankments is accurately rendered, but notice that the ballcourts vary tremendously in size, as does the slope of the walls, although somewhat less. This suggests that the ballcourts are not modeled on a physical object which could be used as a model for the builders.

Teotihuacan, one of the three largest cities in the world in about AD 700, did not have a ballcourt. But the orientation of the main street and the Pyramid of the Sun with the horizon in effect turned the whole city into a giant ballcourt, using the Sun as the ball. More on this in a later chapter.

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Note 7 --

The name "Ra" or "Re" was probably transferred to Jupiter without hesitation by some of the Egyptians temple domains after 3147 BC, for the apparition of the globe of Jupiter in the south sky was nearly identical in size and in other aspects to the earlier view of Saturn at the north horizon. Only the fact that Jupiter soon (after about 200 years) reached the edge of the asteroid belt and lost much of its coma and all of its tail, at a time when Horus had been appearing regularly in the skies above Earth, kept Jupiter from being accepted universally as chief of the Gods at that time.

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Note 8 --

The Himalayas today are held to be very young, having "reached" their current height after the ice age, and often suggested to have done so in historical times. The mechanics are discussed in Appendix B, "The Celestial Mechanics".

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Note 9 --

In the second century AD Ptolemy reports the star Sirius as red, as do others in late antiquity. However, Sirius is listed as white by the Arab (Persian) astronomer Al-Sufi in the *Book of fixed Stars*, published in AD 964. Both Ptolemy and Al-Sufi were very competent astronomers. Details of how Sirius disappeared behind the last red band are presented in the Appendix "The Red Sirius."

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Note 10 --

The outer red ring may have lasted a long time after the fall of the Absu, and along with the bright ecliptic become known as one of the roads or rivers of the sky. In the *Popol Vuh*, Hunahpu and Xbalanque reach the domain of the underworld by crossing the river of blood (the last equatorial ring) and the river of pus (the ecliptic).

The Classic Era Maya (AD 400 to AD 700) graphic of the Wakah-Chan Tree consists of an upright tree (identified by others as the Milky Way) with a cross bar and with a serpent (called the "square-nosed dragon") draped over a cross bar. I would identify the draped serpent as the ecliptic and the cross bar as the equatorial, although this identification may be reversed. The cross bar (at times the ecliptic serpent) has heads at both ends of its body, one identified as the Sun, the other as Venus. I think the double-headed bar likely represents the plasmoid lightning bolt directed at the Sun by Jupiter in 685 BC, and seen worldwide, which will be discussed in the chapter "The Tablets of Ammizaduga."

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Note 11 --

If the Moon changed its orbit, the force that altered its course might show as the Orientale basin compression scar located at the extreme lower left edge of the Moon as seen from Earth. The Orientale Basin is overlaid with younger craters, and is thought itself to be one of the "youngest" craters or basins. It is (of course) held to be 3.9 billion years old. The outer ring of displaced mountains is 200 miles (320 km) in diameter.



[Image: Orientale basin of the Moon. After NASA.]

The Moon retained its original path around the Sun, which has an inclination to the Sun's equatorial which is slightly different from that of the Earth.

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Note 12 --

John Anthony West in *Serpent in the Sky* (1979) claimed that the excess erosion of the Sphinx is due to rainfalls thousands of years before the construction dates of the Pyramids (2600 to 2500 BC). He wrote, "*The last time Egypt experienced a rainy period capable of producing such weathering effects was the Neolithic Subpluvial, between 5000 and 7000 BC.*"

However, Colin Reader, in "Giza Before the Fourth Dynasty" *JACF* (2002), writes that wetter conditions existed in general in Egypt "as late as the end of the 5th Dynasty" (circa 2500 BC). The Giza pyramids were built during the 5th dynasty. He also suggests that most of the weathering of the Sphinx took place before the building of the pyramids, but he dates the Sphinx to the first or second dynasty. The first dynasty ended in 2850 BC. He also suggests that additional weathering is due to seepage from the adjacent areas of the plateau where limestone was removed during construction of the pyramids and the quarries backfilled with rubble.

Let me add to the rains proposed here the following two: first, the incessant rains during the fall of the Absu at the end of the 5th dynasty (2349 BC), and second, the initial rains of the years of darkness after the Exodus (1492 BC).

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Note 13 --

In this instance, 2349 BC, the interplanetary lightning strikes consisted of a series of 9 plasmoids following an initial much larger plasmoid. Some of these may have landed in Central Asia on the second day.

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Note 14 --

See the website of Timo Niramo for a detailed overview of the 2349 BC and 2193 BC events, at <http://personal.eunet.fi/pp/tilmari/>

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Note 15 --

It would seem to be difficult to disassociate the first showing of the Moon from the events of 2349 BC, with the exception of the life span given to the Moon in the *Annals of Shu*, which is only 110 years.

The "death" of Shun, the Moon, when "he went on high," is likely to be a change in the orbital path of the Moon, coinciding with an increase in the Earth's orbit in 2193 BC. Thus the 110 years since the "birth of Shun" should probably be lengthened to 156 years, if we assume that the Moon showed up at the earlier increase of the Earth's orbit.

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Note 16 --

The date correction is based on the assumption that the backward extension of the Long Count by the Olmecs in 747 BC was based on a 360-day year. This is clear from the 20-day Uinal "months" which add up to a Tun ("year"). There are 18 of these months to make up a Tun. All other measures rotate at a value of 20 -- Kins, Tuns, and Katuns. (Baktuns rotate at 13.)

This was done by adding 6 Baktuns to the count of 0.0.0.0. The history of past events was probably a listing of Katuns and Baktuns (where a Baktun is a

double-decade of Tun years). But when the Maya retrocalculated in AD 700 they would have used a 365.24-day year to arrive at a predetermined Baktun and Katun. Our calculation based on the Long Count is also based on the assumption of Gregorian years (365.24 days) in the remote past, and thus also places events too far into the past by 5.24 days per year. Thus to recalculate the inscribed Long Count dates to the correct chronography, a value of $(\{\text{date}\} - 747) * 5.24/365.24$ years needs to be subtracted from the Mesoamerican dates. See the chapter "The Maya Calendar."

A date from the Palenque sculpture which falls in the 7th century AD (a conjunction of Saturn, Jupiter, and Mars on July 23, AD 690, in Libra) needs no correction, and is dead accurate. This date falls after 747 BC.

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Note 17 --

The Egyptians never recognize the Moon. There is a total absence of the crescent of the Moon in depictions. Upturned crescents, as, for example, part of the headdresses of Gods and Goddesses, are based on symbols dating to before 3147 BC, and on graphic simplifications of cattle or ram horns, they are not based on the Moon, since the Moon never produces an upturned crescent at the latitudes of Egypt.

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Note 18 --

Since the Katuns (and the implied Baktuns) were retrieved from ancient records, they were not retrocalculated, as at Palenque. The Katuns (and Baktuns) were most likely based on Tun years which were equivalent to solar years. A Baktun would thus be equal to 400 solar years, and a Katun would be 20 solar years, without regard to the actual length of the year. Thus the correction formula (below) is based first on subtracting 6 Baktuns (2400 years) from 747 BC to arrive at 3147 BC as the year of the end of the "Era of the Gods." Other corrections are thus found numerically as **3147 - 400*Baktuns - 20*Katuns**.

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Note 19 --

Venus was probably orbiting the mass centroid of Saturn, Neptune, and Uranus, and thus somewhere at the level of Neptune. Venus could easily have been locked out of the reformed combined plasmasphere if its location managed to

avoid the extension of the new plasmasphere in the direction away from the Sun, or, alternately, if it passed through this space in revolving around the Saturnian planets, and subsequently passed out of the combined plasmasphere. That would place it behind Jupiter from the slightly later point of view from Earth, after 3147 BC. This conforms to the notion of the Greeks (and only the Greeks) that Venus had been born from the head of Jupiter (Zeus), because it was first seen passing from behind Jupiter.

It might easily be suggested that the original diameter of the "gravitational sphere of influence" of Saturn shrank in the presence of the mass of Jupiter (which is three times that of Saturn). Shrinking a gravitational sphere of influence released the somewhat distant planets Earth and Venus from being carried along as satellites of Saturn. Away from other large masses, a sphere of influence is generally about 100 times the diameter of the parent planet -- 7 million miles (11 million km) for Saturn.

Mercury and Mars must have continued to travel with Saturn, for they show up near Earth about 80 years late. The Sumerian *King List* places Mars near Saturn in 3147 BC by virtue of the fact that only 80 years had passed since the last lowering of Mars. That time span is half of the earlier periods between lowering -- thus placing Mars closer to Saturn than to Earth.

With the following appearances after 3147 BC, Mars is accompanied by many asteroids, suggesting an aphelion in the asteroid belt. The movement of Mars and Mercury -- why they returned to the region of the inner planets from the asteroid belt -- was governed by the gravitational attraction of the Sun, expressed as soon as Mercury and Mars fell away from the enclosing plasmasphere of Saturn. It can only be suggested that, like what we will see Jupiter do also, the plasmasphere of Saturn would have shrunk on reaching the asteroid belt. It can thus be suggested that these planets were released when Saturn's gravitational sphere of influence shrank as it entered the asteroid belt.

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Note 20 --

The "tree" at Biblos of the *Isis and Osiris* story (by Plutarch in AD 100), is the plume of plasma impinging at the north magnetic pole of the Earth, after the change in the Earth's orbit in 3147 BC. The lodging of the coffin of Osiris in the tree is likely a ball plasmoid at the end of the plume. The polar plumes were presented in the text of a previous chapter.

Isis, in the shape of a swallow, flew around the tree which entrapped the coffin of Osiris. The swallow is possibly Mercury, which had polar plumes, because of an atmosphere (partially extant today). It had a split tail which additionally make it look like a swallow. The split plasma tail is typical of a body with only a limited magnetic field. Split tails have regularly been observed for comets over the last 400 years. The visual impression that a swallow was "circling" the tree of the north likely reflects Mercury's close passage to the Sun.

This does not measure up to my other, later claim that Mercury only appeared with Mars at the end of the 80-year period. So, rather than the swallow being Mercury, it more likely is the planet Venus, who is Isis.

The fire lighted by Isis, where she roasted the baby of the Queen of Biblos, was seen also in antiquity, and is likely the lower portion of the plasma plume in arc mode. At a later date the Egyptians would identify the plumes as the braziers of the four cardinal points.

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Note 21 --

I have only found one reference to a possible plasma discharge associated with Saturn after 3147 BC in the Maya *Chilam Balam* books, but I think it is a transcription error.

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Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Chapter 21: Day of the Dead.

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In the previous chapter the period from 3147 BC to 2150 BC was described. During this period many changes of the sky happened, especially between 2400 and 2200 BC -- the supreme rulership of Jupiter, the "flood of Noah," and the disappearance of the Absu. At this point I want to add some elements from the event of 2349 BC: the bloodbath by Kali, Hathor, and others, the intervention by Jupiter, the worldwide celebration of the Day of the Dead, and some notes on one of the two "Tower of Babel" stories.

Blood and Alcohol

Associated with the fall of the Absu in 2349 BC is the notion of blood everywhere. The blood-red condition shows up in tales of the destruction of mankind recorded in New Kingdom tombs (Tutankhamen, 1327 BC; Seti I, 1279 BC; plus others down to 1136 BC, although these dates are held by Velikovsky to fall in the 10th to 9th century BC), where Hathor (Venus), as the lion-headed Goddess Sekhmet, wades in the blood of men and in red beer.



... Hathor

These New Kingdom texts replicate the written style of the Middle Kingdom, that is, the era in Egyptian history after the demise of the Old Kingdom in 2193 BC, and would thus date from long before the time when they were recorded. Most likely the tales date from 2349 BC, the same event (the "flood of Noah" and the fall of the Absu) which was also replayed shortly after 2349 BC by Unas in his Pyramid Texts, where he threatens to cut the throats of the celestial gods and disembowel them.

In 2349 BC, when Hathor (representing the plasmoid of Venus) starts to destroy humans and drink their blood, Ra (Jupiter), who had ordered the destruction, managed to stop Hathor when she went out of control, by ordering the manufacture of 6000 jars of beer, dyed red with hematite (red iron oxide), to be poured out over the land. The Goddess drinks the beer, gets drunk, and ceases

the killings. Ra retires soon after (which actually would have been 200 years later in about 2150 BC).

The story is recorded as the *Legend of the Celestial Cow*, so called because Ra also orders the creation of a celestial cow on whose back he then sits and leaves Earth. I have introduced the Hathor-cow earlier, in the chapter "The Gods Leave," related to the change in the electric field of the Sun. I suggested that the Van Allen belts would change to a glow mode display from the excess electrons spiraling back and forth along the magnetic field lines. After creating the cow's back, Ra next orders the creation of the cow's legs. (Is that a strange detail?) All this happens on the third day after Hathor's bloodbath. In this last detail the *Legend of the Celestial Cow* parallels other descriptions of the same events, as also in the detail that Ra then creates the southern stars. [\[note 1\]](#)



... Kali

The Hindu Goddess Kali (Venus) similarly goes on a blood-soaked killing rampage. Another God (Shiva) has to intervene to stop her. Kali is portrayed as black with black hair and black garments, if any. The same occasional hag-like appearances can be found among other descriptions of Venus as a raging madwoman, a witch, in Mesopotamia as well as in Mesoamerica. Venus would be a dark shape if the planet passed in front of the Sun during the daytime. The

rotation of the Earth would make it look as if Venus raged across the sky -- from the east to the west -- a number of days.

Kali is black because she (Venus) was backlighted by the Sun as it moved into a position of having the Sun, Venus, and Earth all in a line. The plasma tail directed away from the Sun would then point at the Earth. In that Venus has no magnetic field, the tail probably consisted of separate spikes diverging from the centerline of the Sun-Venus axis, as is also seen in cometary tails. If these streams moved about in adjusting to the Earth's plasmasphere that they were passing through, Kali would be seen with flailing arms and legs -- in effect Kali was dancing.

I suspect the compressive contact with Venus was made in a region north of India. This would have tipped the equatorial rings up to move Kali into the midst of the blood-red rings (although the red color may have developed the next day). This was followed within a half day or less by a disconnected plasmoid from Venus (followed by 9 lesser plasmoids over the next day).

The gyroscopic reaction torque to the initial compressive shock (and the tipping back of the Earth's axis) would have rotated the Earth's axis counterclockwise, so as to move Eastern Asia (Russia) to face the Sun and shorten the day in India and Southern Asia. This probably accounts for the fact that the plasmoid "dragon" from Venus was seen in the Middle East, but not noted in India. That suggests perhaps six hours of travel for the plasmoid. That would place Venus at a distance of 12 million miles (19 million km) from Earth during this incident, if the plasmoid traveled, similar to the solar wind, at a rate of about 2 million miles per hour. [\[note 2\]](#)



... Anath

Continuing further west, in the Levant the Goddess Anath of Ugarit goes on a "drunken rampage" extending from the location of sunrise to the Mediterranean sea. Here, too, the local chief God (Baal) has to intervene. Baal, of course, is Jupiter. Here, as in other tales, the dragon or goddess (now the plasmoid, rather than Venus) is described as "wading" in blood or gore (and in other descriptions as slapping her tail through the "waters").

The people of the Eastern Mediterranean saw the approach of the plasmoid from Venus. This lightning strike was not instantaneous; this took time to travel. Leonard King wrote:

"We have long possessed part of another local version of the Dragon myth, which describes the conquest of a dragon by some deity other than Marduk; and the fight is there described as taking place, not before Creation, but at a time when men existed and cities had been built. Men and gods were equally terrified at the monster's appearance, and it was to deliver the land from his clutches that one of the gods went out and slew him."

"Tradition delighted to dwell on the dragon's enormous size and terrible appearance. In this version he is described as fifty beru (bêru) in length and one in height; his mouth measured six cubits and the circuit of his ears twelve; he dragged himself along in the water, which he lashed with his tail; and, when slain, his blood flowed for three years, three months, a day

and a night. From this description we can see he was given the body of an enormous serpent."

-- Leonard King, *Legends of Babylon and Egypt* (1918)

The "beru," a footnote mentions, was the space that could be covered in two hours' traveling. The apparition is thus held to be 400 miles (640 km) long (assuming 8 miles are covered in two hour's walking), and 8 miles (13 km) in width. The head of the plasmoid may have looked larger, in that it was closer to the observers. The size of the object in the sky might have been estimated by comparison to distant mountains.

The Goddess Anath of Ugarit is described as extending in size from the location of sunrise to the sea. This is similar to what is suggested above for the dragon.

The dragon apparition was not Venus, since Venus would have (or might have) blocked the Sun, being in a direct line with the Sun. This dragon with its enormous head was a plasmoid launched from Venus, an object lighted by its own arc mode plasma. As the Earth rotated toward the east the "head" of the dragon, a round ball of plasma with what looked like tentacles hanging from the mouth (the classical depiction of a dragon in China and in Mesoamerica), would first be seen in the south and then pass by, headed toward the west with the "tail" following behind it in the east.

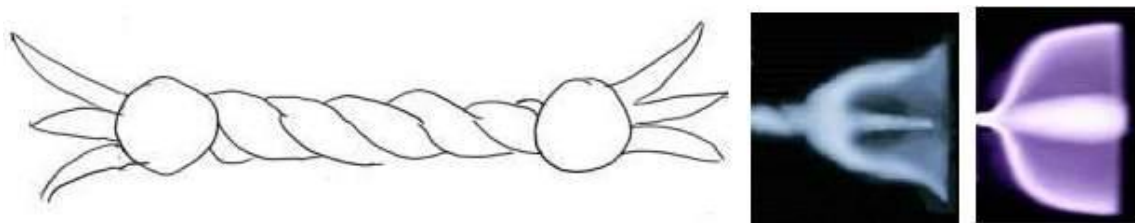


[Image: *Leviathan. After Gustave Doré.*]

The oldest beast of the Bible which Yahweh conquered is Behemoth, referred to in Psalm lxxviii:30, as "the beast of the reeds." This is mentioned in *Myth, Ritual, and Kingship: Essays on the Theory and Practice of Kingship in the Ancient Near East and in Israel* (1958), S. H. Hooke (editor). The reeds, again, describe the Duat.

The whole apparition, being brilliant enough to shine through the dust and particles of the Absu, had the appearance of being within the rings, "in the sea." It would have happened in the course of a half a day, for the travel time of the plasmoid would not have lasted more than 6 hours. The Earth shock happened east of the region of the Eastern Mediterranean from which we have reports (and likely north of India). The contact with Venus would have been made as the Sun, Venus, and Earth were all in a line -- at noon local time. The plasmoid would have been launched very soon after the Earth shock, and was seen arriving by the people of the Eastern Mediterranean before night fell -- about 6 hours or sooner.

This was a time near the equinox, so that the day would normally have been about 12 hours long, but the reaction torque would have reduced the length of the day, moving the west part of the Earth faster toward the east, because of the swing made by the Earth's rotational axis. If the plasmoid traveled at a rate of two million miles per hour (3.2 million km per hr), which is the speed of the solar wind after leaving the Sun, then Venus would have been at a distance of about 12 million miles (19 million km) from Earth at the time the plasmoid was launched. At a higher speed of travel (as I will propose), Venus would have been separated from Earth at a greater distance.



[Images: Left: Plasmoid lightning bolt shown in its full extent. Illustration by J. Cook. Right: The end form is based on viewing the denser edge of the cup-like form and a dense central core. After David Talbott and Wallace Thornhill, *Thunderbolts of the Gods* (2005).]

The tail would have grown in size as the plasmoid was viewed at an increasing angle. As it closed in on Earth, the rear tines of the plasmoid would become

distinct and look as if they were wading through the rings of the Absu like the legs of a giant animal. The slashing tail is the collapse of the main body of the plasmoid delivered almost broadside onto the rings of the Absu, and exploding on reaching the electric field surrounding the Earth. For this reason Chinese dragons are depicted as contorted and twisted snakes with legs.

The dragon, as Tiamat, opened its mouth and swallowed the winds, whereupon she burst. So reads the Babylonian *Enuma Elish*, which I'll address further below. The winds were real; but resulted from the heat of the expanding air mass originally centered on Asia. Additionally, the explosive blast, followed later by additional plasmoids, would have sent scorching waves of heat to the Earth's surface. This too added to the winds.



... Ku-Bau

From the Sumerian *King List* we have:

"After kingship was brought back to Kish again, Ku-Bau, the innkeeper, she who made firm the foundations of Kish, ruled for 100 years as 'king' before Kish was defeated."

Her occupation is also translated as "prostitute" or "barmaid" -- the last as yet another association with alcohol. She is probably Venus, but cannot be dated with certainty to the destructive appearance of the planet in 2349 BC, although

her "reign" predates Sargon's conquest of Mesopotamia, which is listed somewhat later in the *King List*.

"In Kish, Puzur-Sin, son of Ku-Bau, reigned 25 years as king; Ur-Zababa, the son of Puzur-Sin, reigned 400 years."

Archaeologists date the barkeep Ku-Bau at circa 2400 BC (how amazing!). Puzur-Sin ("Moon"), her son, is estimated by archaeologists at circa 2360-2340 BC, and Ur-Zababa, the grandson at circa 2340 BC. Here is Venus as the barmaid, Puzur-Sin as the Moon, but I don't know who the grandson is (I suspect it may be the electrically active Moon stripped of its atmosphere). There was no 500-year delay before Sargon's conquest of Sumer, however, as presumably indicated in the King List. It happened at the same time as Ku-Bau's appearance. Individual dynasties listed in the Sumerian King List often run simultaneously, or more likely list the extent of the lifetimes of the individual kings.

The association of what would be the smell of alcohol (or wild dancing) with some of the legends, and the association of the color red with all three of these tales (there are many more), might suggest an analysis of the possible chemistry of the gases and particulate matter of the Absu. It may have been a smell associated with brewing or fermentation. There will be similar suggestions of worldwide odors at much later dates, but these are recognized as sweet smells like the scents of flowers, or, as I would suggest, like diesel exhaust, and thus the burning of hydrocarbons like crude oil.

Ka-Bau (Kubaba) eventually is recognized as Kybebe (or Cybele) in Anatolia, and is adopted by the Romans as a goddess 2000 years later.



... Grendel's mother

In the Anglo-Saxon epic *Beowulf*, the hero Beowulf battles the mother of the dragon Grendel in a cave under the sea (or a lake) over the course of three days. The mother of Grendel is yet another version of Kali, Tiamat, Anath, Sekhmet, and Ku-Bau. The "sea" (again) is the Absu. The cave is the Earth's shadow on the Absu. Beowulf rises out of the blood and gore of the lake at the ninth hour (3 PM) of the third day. It is strange that the poem actually mentions the time of day. This closely matches estimates elsewhere in the world of how soon after the earth-shock of 2349 BC Jupiter "rose from the dead."

The three-part epic recounts events of 3147 BC (Grendel's arm is torn off at his shoulder), 2349 BC (a bloody fight with a she-dragon under water), and 685 BC (a battle with a fire dragon), aided in the last instance by one of his young cohorts, Wiglaf. Beowulf is played by Jupiter throughout, except perhaps in the last instance. The dragon protagonists in all three parts are Venus or an associated plasmoid. Beowulf's display of the hilt of the sword which slew Grendel's mother is the southern polar plume seen from 55 degrees north latitude. Grendel's loss of his arm recalls the same detail as presented in the Maya *Popol Vuh*, where Hunahpu (Venus) has his arm torn off "at the shoulder" by Seven-Macaw -- the loss of the plasma connection of Venus with Saturn.

The alcohol seems to be missing from the Beowulf epic, perhaps because the tale was composed some 3000 to 4000 years after the events, although the central event, the attack by Grendel's mother, occurs after heavy feasting and drinking at Heorot Hall. For the more contemporaneous generation of the tales

of Hathor, Kali, Anath, and Ku-Bau, there is a close association between the arrival of Venus in 2349 BC and alcohol, as well as intervention by the chief God. The Babylonian *Enuma Elish* records this last also. It could therefore be suggested that Jupiter again assumed its giant coma and tail within 2 and a half days after September 6, 2349 BC (the date of the equinox at that time) to be reestablished and remain as chief God for the next 199 years.

I should also note that the 400 Lost Boys, recorded in the *Popol Vuh*, who become the Pleiades (at the time of the "flood of Noah"), are also "dead drunk" at the time they are blasted into the heavens by Zipacna, the mountain giant Jupiter.

Where did the plasmoid land? I suspect that it never reached the surface of the Earth. I think that it dissipated at the equatorial rings, but not without massive return strokes of lightning from the Earth's toroidal belts (the Van Allen belts, located above the atmosphere at the equator) into the equatorial ring system. The *Chilam Balam* mentions the return lightning strokes, as does the Chinese legend of the archer Li.

The Ten Suns

Having been introduced at this point to the black Kali of India, Anath of Ugarit, and Hathor of Egypt (Tiamat of the Babylonian *Enuma Elish* will be discussed later) -- all wading in the blood of slaughtered humans -- it is perhaps appropriate to tie together these "legends" and attempt to establish a sequence of events for the days of the 2349 BC event which are otherwise known as the "flood of Noah." Details are scant, but the following sequence seems reasonable.

India saw the approach of Venus, initially as a black mass occluding the Sun. The initial compressive Earth shock in Asia north of the Himalayas, due to the electric fields of the planets, was instantaneous. The seismic aftershocks to the repulsive electric force north of the Himalayas would have made Kali dance. The details of a bloodbath were only added the next day when the Absu had broken up into a red bath.

The seismic shockwave traveled in all directions, causing great damage, noted mainly southwest and west of the shock impact site, among sites from the Caucasus through Anatolia and across Greece. This condition would have been aggravated if there had been attempts at charge equalization through lightning bolts reaching the surface of the Earth. There was a lightning bolt, but it took 6

hours to arrive, and then apparently dissipated at the Earth's Van Allen belts or the ionosphere. This was, on the one hand, a peculiar interaction, and on the other, a grace for the Earth. We were spared the incineration of forests and prairies, and the loss of light for thousands of years. It is possible also, that the initial plasmoid landed in the Pacific. Water vapor in the atmosphere will not cool the Earth by blocking sunlight for hundreds or thousands of years. If the plasmoid was mostly absorbed by the ionosphere, it would have resulted in massive lightning strikes from the ionosphere or upper atmosphere to Earth's surface (under the condition of the upper atmosphere or ionosphere inducing an opposite voltage at ground level).

The surface lightning strikes to Earth were thus not from Venus. From Venus came one very large plasmoid, and some nine additional smaller ones. Except for the damage done to the Absu by the first plasmoid, it is difficult to determine where these bolts landed and what the damage would look like. More on this further below.

The date of the shock can be established as occurring on the day of the autumnal equinox. This will be discussed in a following section. At the fall equinox the axis of the Earth would have been inclined forward -- in the direction of travel of Earth along its orbit. As mentioned earlier, the jolt to the Earth, above the equator, would have caused the spin axis to tilt away from the Sun, followed immediately by a reaction torque twisting the axis back toward the leading position of Earth's orbit, but in a counterclockwise direction (as seen from above). The effect would have been to bring the equatorial rings up to face Venus and the Sun, a condition probably accomplished within a few hours. The travel of the Earth's axis in this loop would have kept the broadside of the rings of the Absu facing Venus for about a half a day or a day.

This action is important, because the twisting of the axis may have kept the Earth from being incinerated, for the very next event after the initial shock was the release of the plasmoid thunderbolt by Venus. But it took time to reach earth.

The people of the Eastern Mediterranean saw the explosion, which, if my sense of timing is mostly correct, most likely happened over North Africa or the Atlantic or even further west. At this time the Eastern Mediterranean was turning away from the Sun and Venus at a faster rate than normal (the result of the gyroscopic reaction), and it was in Central America where the next phase of the spectacle was clearly witnessed.

As the day dawned in Mesoamerica, the arrival of secondary plasmoids was witnessed and recorded by the Olmecs, to be transcribed to garbled narrative texts some 3900 years later on separate pages of the *Books of the Chilam Balam*. The last page of Book 2 reads:

"Our gods have grown!" their priests said (those from [of] the Sun). And then days of the year were introduced."

"Behold abundant suns come,' they said. And the hoofs of the animals burned and the edge of the sea burned."

"This is the sea of bitterness!' they said."

"And the face of the sun was corroded, and its face became darkened and was put out. And then, above, they became frightened. 'It has burned up! Our god has died!' their priests said. And they were beginning to think about making a picture of the figure of the sun, when the earth shook and they saw the moon."

-- Antonio Mediz Bolio, *Books of the Chilam Balam of Chumayel* (1930) [\[note 3\]](#)

This single page of the *Chilam Balam* obviously refers to 2349 BC, with its reference to a new calendar ("days of the year were introduced" -- the Tzolkin), the disturbance of the Absu ("the edge of the sea burned"), and the arrival of the Moon ("the earth shook and they saw the moon"). The first line may refer to the initial plasmoid from Venus, seen in the east, but the phrase, "behold abundant suns come," describes secondary plasmoids of lesser intensity which followed on the heels of the initial dragon-sized bolt. [\[note 4\]](#)

The darkening of the face of the Sun can be attributed to the fact that the Sun would have sunk toward the south horizon as the Earth's axis tilted away (up) from the direction of the Sun. On the remainder of this page of the *Chilam Balam* a war ensues, with whole armies being shot down with arrows. This likely represents the lightning bolts traveling up through the Absu on the same or following days. China records the same. [\[note 5\]](#)

Except for the clear reference to 2349 BC, some of this text would have remained inexplicable if it were not for the fact that an almost identical description exists in China, as the legend of the "Ten Suns" which are shot down with the arrows of the celestial archer Li and which is placed "after the time of

Yao." Both the Mesoamerican text and the Chinese text mention the multiple Suns, the heat felt on Earth, and the arrows directed up through the Absu. Li might be the Moon or a narrative fiction.

In China, daylight would normally arrive nearly a half day after it was daylight in Mesoamerica. But as the Earth's axis spun away from the direction of the Sun and simultaneously started to lean in the lagging direction of the Earth's orbit (initially), daylight and the secondary plasmoids, would have appeared hours earlier than normal. Otherwise it would be difficult to maintain that secondary plasmoids from Venus continued for as much as a day. The many suns were seen as rising, that is, in the east, and likely followed each other. The lightning bolts were launched individually. Nine were shot down. The last, the real Sun, remained.

And then it stopped, except for the bleeding of the sky. In India black Kali was now wading in blood. It stopped, observers noted, because a God had interfered. A sudden reappearance of the coma of Jupiter, on the second night after the day of the event, was the sign that this had happened. The timing of this is not at all clear, though. In Babylon, in the *Enuma Elish*, written hundreds of years later, the rescue of Earth is attributed to a complete plan devised by Marduk before the onset of the plasma contact. But in India, the Levant, and Egypt, the God who quells the raging goddess acts shortly after the start of the killings. If the plasma expulsion of Venus also traveled past Earth, down the extended tail of the Earth's plasmasphere facing away from the Sun, it would have reached Jupiter (with Jupiter in line with Earth) in about 6 days and caused it to switch to a glow mode coma. This assumes a speed of about two million miles per hour (3.2 million km per hr).

It could have been sooner, however, for coronal mass expulsions (a dense plasma) from the Sun have been known, in recent times, to travel on occasion at a rate of 200 million miles per hour (320 million km per hr), rather than 2 million miles per hour. At a somewhat higher speed of six million miles per hour, it would have reached Jupiter (at that time located at 4.5 AU from the Sun, and thus about 3.5 AU from the location of Earth) in two and a half days. The worldwide celebrations of the "Day of the Dead," which will be introduced below, almost uniformly last two and a half days. [\[note 6\]](#)

If Jupiter blazed, suddenly, two and a half days after the Earth shock, as the tremors from the shock lessened and the sweeping hurricanes abated, and after

experiencing the plasmoids from Venus, Jupiter would have been understood as the savior of the Earth. Only the blood in the "ocean" remained.

The bleeding of the dragon lasted, one of the above sources notes, for 3 years, 3 months, one day and one night. The time for the complete fall of the Absu can be compared to the various times that flood survivors spent floating in their various boats and arks, which, of course, is nowhere near three years. In most myths the extent of the flood is much shorter, although these tales represent references to the flood of 3147 BC. Noah, in the Biblical story spends a much longer time afloat, but not three years.

I also do not know if the Absu was originally colored red, although it could be suspected that at least part of the rings may have been. Some low-density gases will glow in red when ionized and under electric discharge, as is seen today in the Aurora (and in the rings of Saturn). If the Absu had always been red, we would never have heard anything about it. More likely, it was a condition of 2349 BC due to a continual plasma discharge via the equatorial rings. The *Chilam Balam* claims that the whole world turned red at this time, and attributes the condition to Jupiter. Another page of the *Chilam Balam* claims that the condition only lasted past the ending of one Katun, and partway into the next -- 18 or 20 years.

Blood would have been everywhere in the sky. It was near the fall equinox, and at night the Absu would have been divided by the long shadow of Earth. Based on Maya iconography it appears that by coincidence Jupiter appeared in the very center of the gap of the Absu as it expanded into a giant form. As the rotation of the sky, due to the gyroscopic reaction, neared completion at about this time, then Jupiter would have been seen as rising from within the gap. Actually, the Absu lifted up again against the background of the stars as the Earth resumed its normal tilt -- at the same time that Jupiter suddenly developed a large glow mode coma and a giant expulsion of plasma below the coma, its mountain.

With the initial gyroscopic condition of the Earth tilted away from the Sun, the gap created by the shadow of the Earth would have closed to become a cave or doorway. Returning the Absu, or what was left of it, to its normal position against the backdrop of the stars, would also move the shadow of the Earth up against the rings. This would make it look as if the cave exploded open as Jupiter moved up and out.

This is confirmed from a number of Mesopotamian seals, dated to shortly afterwards, which depict Jupiter rising from between two mountains. This is

correct for an alignment of the Sun, Venus, Earth and Jupiter. But there is much more that confirms this condition from throughout the world.

The Day of the Dead

Moe Mandelkehr, in *The 2300 BC Event* (2006), assumes that the events of 2349 BC and 2193 BC can be represented as a single incident of a fall of meteorites in about 2300 BC and the subsequent creation of a series of circumpolar rings which lasted some months. The book, in three volumes, includes a wealth of information, of which the details of a worldwide celebration of a "Day of the Dead," centering on the culmination of the Pleiades in the south sky, is the most interesting and bears directly on the topic of this chapter. (A culmination is when a star reaches the highest point in the sky directly above the south cardinal direction at midnight.) He opens with a quotation from W. T. Olcott which effectively sums up the information he presents. [\[note 7\]](#)

"Memorial services to the dead at the season of the year when the Pleiades occupied a conspicuous position in the heavens are found to have taken place, and to have been a feature in the history of almost every nation of the earth, from remote antiquity to the present day."

"The universality of this custom may well be considered one of the most remarkable facts that astronomical history records. ... A great cataclysm ... is in some way associated with the Pleiades, and some reference to such an event can be traced in many of the legends and myths surrounding these stars that have come down to us from nations far removed from each other."

-- W. T. Olcott *Star Lore of All Ages* (1911)

Mandelkehr provides details spanning all continents and both hemispheres. He records the festivals worldwide as celebrating new-year, fire-lighting, and commemorating the dead. He lists details for Britain, Scandinavia, continental Europe, Greece, the Middle East, Israel, Africa, Egypt, Iran, India, Central Asia, China, Japan, the Pacific islands, North America, Mexico (Aztecs), Central America, South America, and Peru. Not all the references are solid and convincing, and some have nothing to do with the topic at hand, but there are certainly more than enough to build a case for a "Day of the Dead" celebration worldwide which had its genesis in remote antiquity. Today this festival is institutionalized in the Christian world as "All Saints Day" and "All Souls Day,"

and celebrated in other forms, as "Halloween," for example, and as the "Day of the Dead" in Mexico. [\[note 8\]](#)

Mandelkehr associates the Pleiades with the autumnal equinox in 2300 BC, based on a retrocalculation from the current constitution of the heavens. As the Sun sets in the west, the Pleiades would have risen in the east. Six hours later, at midnight (sidereal time), the Pleiades would have stood at their highest point in the south sky, a culmination.

The same information is found in Book 10 of the *Chilam Balam*, which mentions that after the fall of the Absu ("the baptism from the center of heaven") the ecliptic and equatorial became visible (as "the crossroads") with the Pleiades ("precious things," as seed corn is called) above these. Details in the chapter "The Chilam Balam."

The fact that an ephemeris will show the Pleiades culminating in the south skies at the autumnal equinox in 2300 BC, is actually a nagging coincidence, for my supposition (developed in later chapters) is that the skies were different and invariant before 685 BC. As it happens, the condition of the sky before 685 BC can be simulated (except for the zero longitudinal line and the horizon) by selecting the year 2000 BC with an ephemeris. This is very close to the retrocalculated conditions for 2300 BC, so that the Pleiades indeed stand at their highest point in the south skies on our equivalent date of September 21 on an equivalent Gregorian calendar -- the autumnal equinox by our accounting. [\[note 9\]](#)

The shift of 15 days experienced in 685 BC almost entirely accounts for the coincidence of the Pleiades appearing at the autumnal equinox in 2300 BC by retrocalculation.

The festivals noted by Mandelkehr for earlier ages occur near the expected culmination of the Pleiades in the sky at midnight in late October or early November. These dates have drifted away from the equinox because the culmination of the Pleiades moved later into the fall of the year after 685 BC due to the precession of the equinoxes (after 747 BC). The dates for many of the "Day of the Dead" celebrations do not recognize the equinox, but only the dates at which the Pleiades stand highest in the sky.

Yet it is also curious (as related by Olcott) that many of these festivals, where they are still celebrated today, start about 15 days early -- 15 days before the Pleiades reach their highest location in the sky. This agrees with what I will

develop in the chapter "Modern History": that the equinoxes moved 15 days into the future after 685 BC. Before 685 BC the fall equinox fell on the equivalent calendar date of September 6th. (This also agrees with the earliest Mesopotamian records which inexplicably place the equinoxes in the constellations Taurus and Scorpio.)

This probably accounts for the 15-day discrepancy between when many of the "Day of the Dead" festivals are observed today and the actual calendar date of the culmination of the Pleiades. But whereas some people used calendar dates for the celebrations (15 days early), others followed the changing dates of the culmination of the Pleiades, and yet others kept the celebration at the date of the equinox, and in some cases, apparently, returned to the earlier date of September 6 of the equinox (noted by Mandelkehr). [\[note 10\]](#)

The information to be gleaned from Mandelkehr's book is unfortunately insufficient to make any determination of how these various dates for the celebrations may have developed historically, except in a few instances. Although he points to festival dates "around the end of October and beginning of November," he almost never makes note of when in the past these were celebrated. At best this might suggest that festivals seemed to have kept pace with the changing date of the culmination of the Pleiades over the last 2600 years.

It is, however, clear that at various times in the past some of the festivals were codified, that is, tied to a certain calendar date rather than continuing to follow the changing date of the culmination of the Pleiades. We see this in the Christian "All Saints" and "All Souls" days. These were set as a church feast day in about the year AD 700 or AD 1000, purposely coinciding with the "Day of the Dead" celebrations of the European tribes, celebrated, at that time, at the culmination of the Pleiades on October 31, Gregorian. Once tied to the church calendar, this feastday remained locked to October 31 and November 1, with allowances made by the church to continue the celebrations over two days. The pagan Halloween evening festival also kept pace with the church calendar.

A similar codification can be seen in Mesoamerica before the Spanish arrived. Mandelkehr, quoting Bernadino de Sahagún from a secondary source, notes that a "Day of the Dead" celebration occurred on October 20 in the 16th century AD. I think that this date may have been established by the priests at Teotihuacan at about AD 200, when the city was built. At that time the Pleiades culminated between October 20 and October 22, Gregorian (October 20 to 21, Julian).

Teotihuacan was the undisputed primary religious center until circa AD 700, and set the standard for most of Mesoamerica. Its influence lasted into the Aztec era. The Aztecs still celebrated the "Day of the Dead" on October 20 or 21 in about AD 1550. [\[note 11\]](#)

Interestingly, the primary God of the Aztecs, Huitzilopochtli, celebrated his "birthday" on November 9 (Gregorian), when the Spanish arrived in the 16th century AD, which was the actual day of the culmination of the Pleiades at that time. Huitzilopochtli is generally equated to the planet Mars, but the coincidence with the date of the culmination of the Pleiades would suggest that Huitzilopochtli may need to be equated with Jupiter, or that he was originally equated with Jupiter -- who, 3900 years earlier had reappeared from death on the day of the culmination of the Pleiades.

All the festivals honor the dead, light fires, and include torchlight parades. Many at one time mark new-year day. Invariably the celebrations last three days, or two days preceded by an evening festivity, even in Mexico of the 16th century AD. I think this is important in pointing to a series of closely related events, and I would suggest that the fall of the Absu, which was an absolutely terrifying event, would have been closely followed -- in fact, by two days and a night -- by the reappearance of Jupiter in his full mountain-sized form. "After three days he rose from the dead." [\[note 12\]](#)

"Who died?" As I have suggested above, it may have been only Jupiter who died and rose from the dead. The giant coma of Jupiter had disappeared from the sky, as noted in the *Chilam Balam*, sometime before 2349 BC. Although Mandelkehr assumes millions died from comet fragments (ice cubes?) falling from the sky, I think few people died, excepting those in the regions struck by the electric repulsive shock and the traveling seismic disturbances which devastated the landscape -- possibly affecting a large portion of the Earth. Sodom and Gomorrah suffered their initial destruction in the collapse of buildings at this time (which were rebuilt). Some regions of Earth would have been absolutely devastated, as Claude Schaeffer has pointed out. But it was the "blood" seen in the "ocean" which would have convinced the rest of the world that indeed millions of people had died.

The Twin Peaks

The appearance of Jupiter three days after the dragon had arrived and turned the sky to blood, formed an image which entered Christianity and is retained to this

day.

The image is one of Jupiter suddenly appearing, when he had been held as dead at an earlier time. He appeared in the center of the gap of the Absu, two days after the fall equinox. Jupiter was at this time three times the diameter of the Moon (so says Plutarch), with plumes spreading out from the top of the coma, and an absolutely gigantic plasma outpouring below, as the three leaves of a flower, but much denser so as to look like a solid mountain. The Olmecs, with a view of the ecliptic much higher in the sky, depict Jupiter's body as the open mouth of a cayman or alligator (which have short tongues).

Because it was the time near the fall equinox, the Absu at this point had opened up and split into two mountains. The umbra of the Earth's shadow extended across the rings, becoming less wide further from Earth. But the penumbra widened with distance from Earth, in effect rounding the left and right halves of the Absu from the center. The result was to have two mountains -- twin peaks -- next to each other, with Jupiter centered on the valley between the mountains for some hours on the night of September 8th. Since this was the time of the fall equinox, Jupiter (on the ecliptic) would rise above the equatorial in the following weeks and months, reinforcing the concept of rising up out of a depression.



[Image: Shamash rises from between the two mountains. Dawn and dusk, or east and west are shown as flag standards. After E. A. Wallis Budge.]

In the print of an Akkadian cylinder seal, shown above, dated to slightly after 2349 BC, an absolutely giant Shamash (Jupiter) is seen stepping out of the gap between twin mountains, the left and right halves of the Absu. The symbols on both sides of Shamash are partially schematic and partially in script. The right symbol of a star, meaning "heaven" or "holy," is placed on a pole rising out of the glyph for "mountain." Schematically it represents the earlier polar configuration. The left symbol I do not know.

Cylinder seals are small cylindrical stones carved in intaglio, used to roll across a clay slab to be used as a marker of ownership on trade materials. These appear after 2350 BC, although there are also seals dating to shortly after 3000 BC.

The rays rising from the upper arms of Shamash represent the upper plasma of Jupiter as three separate plumes. At other times this resulted visually when the planet dipped below the top level of the Absu and its light was diffracted by the structure of the rings. It thus signified the brilliance of the planet. The same rays show in depictions of Venus, for the same reason.

Flanking the twin mountains are flag standards (with small lions on top), held in place by two gods. The two flags are what was seen of the equatorial plasma toroid surrounding the Earth (the Van Allen belt), which showed up whenever it was energized to glow mode. This was thus a temporary phenomenon, and represents two of the four posts holding up the heavens. These would rise up from the east and west cardinal directions of the horizon, follow the curvature of the equatorial and be truncated by the shadow of the Earth at the time of the equinoxes. It thus reached considerably above the rings of the Absu, which everywhere appeared below the equatorial. These two forms did not move significantly, except that they may have fluctuated in density so that they seemed to waver. This would cause them to be represented as flags, just like in Mesoamerica they are held to be trees.

The lion shown on top is an interpretation (I suspect) of the cross-section of the toroid where the Earth's shadow fell across it. At later instances a circle is shown, which is closer to being correct, because the equatorial toroid would be densest at its outer edges. Because of this ring at the top, these forms are also identified as doorposts (the ring forming the upper "hinge"), and texts describing the appearance of Shamash refer to "the doors of heaven opening."



[Image: Ishtar (Venus) and Ea (Sumerian Enki) aid in the resurrection of Shamash (Jupiter); circa 2308 BC. After crystalinks.com]

The above impression of a somewhat later cylinder seal (2300 BC) shows what really happened. Here the Goddess Ishtar (Venus) and Ea (Mercury) attend the resurrection of Shamash. The script at the left reads "place of purification." That puts a different twist on the event of 2349 BC, as if Jupiter is being baptized. The seal still represents the event of 2349 BC, although at this time the Absu has long since disappeared. The flag standards are gone also.

Within the next few hundred years the Babylonians will spin a new theology with the writing of the *Enuma Elish*, which will bring Jupiter forward as the main character in the event of 2349 BC, under the name of Marduk. The *Enuma Elish* retains the attack by the dragon (Tiamat) and the blood in the skies, but removes the resurrection of Jupiter. Despite the importance of this new retelling of the drama, the fact that Jupiter (Shamash, Zeus, Jove), the most important God of antiquity, had returned from the dead in three days was long remembered -- parts of this tale are replayed a thousand years later in the telling of the Exodus story (the mountain, the sea split open), the resurrection of God is retold many times in many differing religions, and even 2300 years later it enters the Gospels.

In Egypt Ra, Jupiter as the midnight Sun, is always shown as a giant red globe, at times depicted in the saddle between two mountains, or hovering in a valley between two mountains. The mountains, in turn, are shown covered by what looks like rows of reeds. Such depictions are quite late, during the New Kingdom (after 1500 BC), and thus a thousand years removed from 2349 BC. At

that time Ra is shown without his lower mantle or the three-pronged plumes at the top -- just a red sphere.

The Maya

Although in Mesoamerica the depictions are 3000 years removed from the actual event, the sculptures and engravings are based on very old records extant at the time of the Classical Era (AD 400 to 900), and at times uncannily accurate. The image below is of the resurrection of Jupiter from a crack in a turtle shell. It represents a mixture of events separated by thousands of years. Here Jupiter is shown as the Corn God or as the First Father, but is shown rising from the crack of a turtle carapace.



[Image: The Corn God (the First Father, Jupiter) rises from a crack in a turtle carapace, attended by Xbalanque and Hunahpu. After Freidel and Schele, "Maya Cosmos" (1993)] [\[note 13\]](#)

The "image of the turtle" had first appeared in 10,900 BC. The nearest of the three plasmoids likely gave rise to the second and third ball plasmoid of remote antiquity, as if rising out of the nearest ball plasmoid. What is depicted here is the first appearance of Jupiter as the new ruling god in 3147 BC, and

additionally his resurrection in 2349 BC. Hunahpu and Xbalanque are assisting him, even though their actions date from shortly before 685 BC. But in effect they are the same two gods in attendance as in the seal shown above -- Ishtar and Ea. The two monster heads below Hunahpu and Xbalanque represent the two-headed plasmoid from Jupiter of 685 BC.

A portion of the many commemorative stelae which have reference to the completion of a previous creation read, "... on 4-Ahau 8-Cumku was (first) seen the image of the turtle." This is a reference to a ending of the first creation, which likely included only the 2500 years of the ball plasmoids of the south. This ended in 8347 BC. The appearance of First Father ("Hun-Nal-Ye," Jupiter) is dated (here) to the beginning of the current calendar round in 3147 BC, when Bolon-ti-ku, Jupiter, seized the reign from Oxlahun-ti-ku, Saturn, as told in the *Chilam Balam*.

Other references to the creation on the date 4-Ahau 8-Cumku point instead to the placing of the three hearthstones in the sky. These are held (with certainty) by archaeologists to be three stars in the constellation Orion (one belt star and his two feet, enclosing M-42 as the fire). I would suggest that the reference actually is to the start of the "first creation" of 10,900 BC when the three ball plasmoids first appeared in the southern sky.

Hunahpu and Xbalanque, on the other hand, show up in the 120 years between 806 BC and 687 BC, as the twins Mars and Mercury, except in the last instance when they are Venus and Mercury. Since the celestial twins, as told in the *Popol Vuh*, attempt to raise their father from the dead (although without success), an association is had here to the resurrection of First Father. The *Popol Vuh* does not allow success in the efforts of the twins to revive their father, but the theology of other Maya centers speak differently, as is shown by this imagery.

Marduk and the *Enuma Elish*

Jupiter had lost its tail and coma (had died) some time before the "flood of Noah." There is a passage in the Babylonian *Enuma Elish* which tells of this. The express purpose of the *Enuma Elish* was to establish Jupiter (Marduk) as the chief God and to resolve a religious crisis in Babylonia. In the *Enuma Elish* Marduk is installed by the other Gods and invested with power in order to fight common enemies of the Gods, among them Tiamat ("chaos") and Absu ("the abyss"). Marduk asks only that,

"... an 'unchangeable command' might be given to him -- that whatever he ordained should without fail come to pass, in order that he might destroy the common enemy. ... The testing of his newly acquired power followed. A garment was placed in their midst:"

*"He spake with his mouth, and the garment was destroyed,
He spake to it again, and the garment was reproduced."*

-- Theophilus Pinches, "The Religion of Babylonia and Assyria (1890)

The Akkadians (and Babylonians) changed their dress after circa 2500 or 2400 BC from skirts to shoulder-hung robes. The climate had become colder. The century marked the end of the Hypsithermal. (Or we are seeing a change in fashion, which is unlikely.) The Babylonian priests did not spin tales out of whole cloth. The reference to the disappearing and reappearing garment -- it was Marduk's own -- was remembered by everyone, or talked about by their grandfathers. "Mountain" and "skirt" are the same word in Akkadian. The reappearance of Marduk's mountainous plasma tail skirt coincided in time with the arrival of the plasmoid of Venus, the fall of the Absu, and the later arrival of the Moon.

The exploits of Marduk are briefly related as follows:

"Neither An nor his son Ea knew words of power strong enough to subdue Tiamat, but Ea's son Marduk, the patron god of the city Babylon, took on the task of fighting Tiamat in return for his being proclaimed king of the other gods."

Tiamat, whom Marduk is to battle, is the plasmoid of Venus.

"They gave him power to destroy things with a word and made him their king."

"He, in turn, took his bow, the rainbow [actually, the polar plasma plume] that arches across the sky, and his lightning arrows and made a great net to ensnare Tiamat, and riding the winds of seven great storms he went to do battle with her. When he threw his great net upon her, she opened her jaws to swallow him, and the winds that Marduk controlled rushed into her mouth and swelled her belly until it burst."

"Then Marduk cut Tiamat's body in half and raised up one half to make the sky, leaving the other half as the restless oceans."

-- quoted by L.C. Geerts at <http://Earth-history.com>

Tiamat is not an Akkadian or Sumerian Goddess -- but she is female. Tiamat is an invention of the Babylonians, but identified as a dragon. What a sight, to have Tiamat distend and blow up! Here Tiamat is the first plasmoid from Venus in 2349 BC. The Absu, of which nothing more is heard of in all of the *Enuma Elish* after initial mention, becomes one of Marduk's weapons, "the net," along with another, called "the flood." Obviously the *Enuma Elish* was written well after the actual facts had started to fade.

Marduk at this telling of the *Enuma Elish* has become a creator God. The relationship of the *Enuma Elish* to the time period of 2349 BC, however, is clearly indicated by the tasks undertaken by Marduk after defeating Tiamat. Theophilus Pinches, in *The Religion of Babylonia and Assyria* (1890), writes:

"Then came the ordering of the universe anew. Having made a covering for the heavens with half the body of the defeated Dragon of Chaos [Tiamat, the Venus plasmoid], Merodach [Marduk, Jupiter] set the Abyss [the Absu], the abode of Nudimmud [Ea], in front, and made a corresponding edifice above --the heavens -- where he founded stations for the gods Anu, Bel, and Ae."

"Stations for the great gods in the likeness of constellations, together with what is regarded as the Zodiac, were his next work."

"He then designated the year, setting three constellations for each month [an Egyptian decan, and thus 30 degrees], and made a station for Nibiru [Venus] -- Merodach's [Marduk] own star -- as the overseer of all the lights in the firmament."

"He then caused the new moon, Nannaru, to shine, and made him the ruler of the night, indicating his phases, one of which was on the seventh day, and the other, a /abattu/, or day of rest, in the middle of the month."

China

These activities duplicate what the Chinese Legendary Emperor Yao accomplishes in the same era: adjusting the calendar, revealing the planets and

stars (now that the equatorial rings had fallen), and setting the Moon in place.

The Chinese *Annals of Shu* were subjected to chronography by the Han between 200 BC and AD 200, and possibly earlier by the Taoists (there are also comments about estimates by Confucius's disciples). But many of the names on the lists of kings had missing reign lengths, so that averages were used. Dynastic lengths seem to have been better established.

The story of the mortals Khwan and his son Yu forms a parallel to the story of the gods Yao (Jupiter) and Shun (the Moon). We are told that Khwan started drainage of blocked waters on a commission by Yao. The *Annals of Shu* record that in failing to accomplish this, he is kept prisoner on a mountain until his death. His son likewise is hired by Shun for the same purpose and additional tasks; he is appointed to the throne by Shun and survives him to become the first king of the Xia.

Unas and the *Book of the Dead*

Unas, at the end of the 5th dynasty, 2345 BC, is the first pharaoh to add text of the *Book of the Dead* to the interior of his pyramid (as do all the following pharaohs), perhaps being no longer convinced that the recitation by the priests will suffice. If the dates for Unas are correct, then he witnessed the fall of the Absu in 2349 BC. [\[note 14\]](#)

Much Later, in 2193 BC the Old Kingdom will fall because of the failure of agriculture. When it is finally reconstituted as the Middle Kingdom 200 years later, it is as if nothing had happened. Egyptian religious practices continue with the old traditions of Horus, Ra, and Osiris. It was Unas who introduced the full-fledged theology of Osiris with his pyramid inscriptions. The worship of Osiris was new at the time of Unas.

There are no literary references to Osiris before the time of Unas. It suggests that the texts of the pyramid of Unas were meant to promote Osiris. As Jane Sellers, in *The Death of Gods in Ancient Egypt* (1992), writes:

"At the beginning of the Sixth Dynasty another change took place. The religious fervor honoring the sun god [Re] which had marked almost all the efforts of the Fifth Dynasty, shifts its emphasis to the worship of Osiris. It is in the pyramid of Unas, last ruler of the Fifth and in the pyramids of rulers

of the Sixth Dynasty, that texts were now inscribed, and it is in these Pyramid Texts that the role of Osiris is predominant."

"Sir Alan Gardiner has written that the Pyramid Texts had the sole aim of insuring the deceased ruler's identity with Osiris and insuring that the king would fare as Osiris had."

The reference is to Sir Alan Gardiner, *Egypt of the Pharaohs* (1961). There are references in the pyramid texts of Unas to the bloodbath of Hathor of 2349 BC, although not directly, but displaced as actions by the dead pharaoh.

Sellers again:

"In the Fifth Dynasty some of the kings began a use of a name compounded with that of Re [Note: this actually started during the Fourth Dynasty], and the nomen was now used less often on the monuments; concurrently the building activities now centered on sun temples. By the end of the Fifth Dynasty, however, the worship of Osiris (as evidenced in the Pyramid Texts [of Unas]), appear to rival the worship of Re. From these changes Egyptologists have concluded that competing groups worshiped Re and Osiris."

Sellers quotes J. Gwynn Griffiths, from *The Origins of Osiris and His Cult* (1960), as:

"While there is every likelihood that the Osirian material in the Pyramid Texts derives in part from a much earlier date, so far it has proved not possible to track down the god or his symbols tangibly to the First or Second Dynasty."

Let me: Osiris is always shown as a mummy, and consistently colored green. Although depicted as a green mummy in the middle kingdom, the actual green color dates from after 3147 BC to about 2914 BC. This is the green mummified creation-god Ptah of Memphis. He lived forever and is first king of Egypt. Why have the experts not noticed this? He is equated with Hephestus (who is Venus) by the Greeks and married to Sekhmet (who also is Venus), and wears the Osiris crown. I could add more aspects identifying him with Osiris. How could Sellers have missed this?

This is the same green that describes the mountain form of Jupiter in the *Popol Vuh* -- where he is simply known as "Mountain" (and as the "green tree of the

center" in the *Chilam Balam*). Osiris thus is Jupiter, but in a form only recalled or recorded by one or more of the Egyptian temple domains. It is the form assumed by the planet Jupiter until it entered the asteroid belt in circa 2914. The mummy form of Osiris also recalls (or is) Min, the delta God from circa 3100 BC. Both are shown as ithyphallic. Min is thought to be the first pharaoh of the first dynasty, Menes -- "mn" in Egyptian, "he who endures" -- and thus also most likely Jupiter.

I am pointing out the sudden interest in Osiris because it was not new at all, and interestingly, the recollection from an earlier time is correct. The Osiris tale can certainly be tied to the reappearance of Jupiter directly after the arrival of the plasmoid from Venus. Additionally, at a later time, a day in the calendar is designated as the commemoration of the death of Osiris, with a day three days later as the date Isis brought him back from the dead, although temporarily. There is an inversion of sorts of closely related events, as is not untypical of a number instances in antiquity. But here again is the interval of three days (two days and a night) between the sky turning blood red and the sudden reappearance of Jupiter with a lower plasma mountain.

Jupiter probably had lost its coma before 2349 BC, that is, had "died" earlier. Thus in the narrative "legend" of Osiris there is a temporal connection for which there is only a tenuous claim in reality, based on what we know or have been told. All the same, this particular claim -- the death of God followed by his resurrection after three days -- will resound in other legends and in religious claims throughout the ages. The God Marduk of Babylon and Ashur of the Assyrians each also die and are resurrected.

As I mentioned above, Unas, whose tomb walls were inscribed with the texts and spells of the *Book of the Dead*, most likely witnessed the fall of the Absu and the blood in the sky. This is almost certain from consideration of the following engraved Pyramid text. E. A. Budge, in his introduction to the translation of *The Egyptian Book of the Dead* (1895) notes a section of the Pyramid Text from the tomb of Unas which is totally out of character with the other texts dealing with the material and spiritual enjoyments of the deceased. He writes:

"... the most remarkable passage in this connection is one in the pyramid of Unas. Here all creation is represented as being in terror when they see the deceased king rise up as a soul [ba] in the form of a god who devours 'his fathers and mothers'; he feeds upon men and also upon gods. He hunts the

gods in the fields and snares them; and when they are tied up for slaughter he cuts their throats and disembowels them. He roasts and eats the best of them, but the old gods and goddesses are used for fuel. By eating them he imbibes both their magical powers, and their 'khu's.'"

Budge quotes the actual passage, of which I will only reproduce the opening line:

"The heavens drop water, the stars throb, the archers go round about, the bones of Akeru [mythological guardians of sunrise and sunset] tremble, and those who are in bondage to them take to flight when they see Unas rise up as a soul [ba], in the form of the god who liveth upon his fathers and who makes food of his mothers."

Unas has here been transformed into the plasmoid of Venus at the fall of the Absu, just as, in other retellings, Hathor had appeared as the lion-headed Goddess Sekhmet in the form of the eye of Horus. Unas here also wades in blood and gore, while the sky fills with water and fire, and arrows are launched, as also on a page on the "third creation" of the *Chilam Balam*. There is little doubt that the priests took advantage of the event of 2349 BC to offer an additional spell to be added to the texts (these were carved before the pharaoh died). It is also certain that the sudden change in religious emphasis -- especially in the worship of Osiris -- was initiated by this absolutely stupendous cataclysm.

Chronology of the 24th and 23rd Century BC

At his point we can collate some dates. The dates below concern four events:

- the fall of the Absu,
- the first appearance of the Moon,
- the "death" of the Moon or the time when it settled into a regular orbit around the Earth, and
- the extinction of Jupiter.

We have these dates from the following sources:

- the *Annals of Shu*,
- the *Chilam Balam*,

- Ussher's chronology, and
- the inscriptions at Palenque.

I have added the four suspected passes of Venus, assuming an interval of 52 solar years. (See Appendix B, "Celestial Mechanics" for the validity of the 52-year cycle during this era.) In the following, read "sb" as "should be," that is, the corrected value.

Fall of the Absu, appearance of Jupiter (Yao)

- 2349 BC - first contact with Venus
- 2349 BC - Ussher: flood of Noah
- 2286-2266 BC - Chilam Balam: The second baptism (see comments)
- 2357 BC - Annals of Shu: Yao takes the throne
- 2357 BC - Annals of Shu: Khwan on the inundation
- 2360 BC - Palenque: the three planets born (sb 2336.8 BC)

The Moon (Shun) appears in orbit

- 2297 BC - second approach of Venus
- 2325 BC - Palenque: Moon lets blood (sb 2302.3 BC)
- 2318 BC - Annals of Shu: Birth of Shun (Moon)
- 2305 BC - Palenque: Moon becomes ruler (sb 2282.6 BC)
- 2287 BC - Annals of Shu: Shun joins Yao on throne

The Extinction of Jupiter (Yao)

- 2245 BC - third approach of Venus
- after 2247 BC - Ussher: "Tower of Babel" (may be 2150 BC)
- 2257 BC - Annals of Shu: Yao dies

Fall of Akkad and the Old Kingdom

- 2193 BC - fourth approach of Venus (electric contact)
- 2207 BC - Annals of Shu: Shun (Moon) dies
- 2205 BC - Annals of Shu: start of the Xia dynasty

- 2193 BC - fall of Akkad and the Old Kingdom
- 2128 - 2108 BC - Chilam Balam: "fire on high" (sb 2167-2147 BC)
- 2155 BC - Annals of Shu: Celestial Phenomena
- ca 2150 - Cylinder of Gudea: splendor of Ningirsu
- 2150 BC - extent of Abraham's lifetime
- 2150 BC - likely "Tower of Babel" event

A few comments

The records of Mesoamerica as reflected in the *Chilam Balam* accurately record dates, which in deep antiquity probably consisted of Baktuns (periods of 400 solar years) and Katuns (periods of 20 solar years). These can be converted to solar years, if we can guess the Baktun associated with any recorded Katun. Unfortunately, some dates around 2349 BC seem to be in purposeful disorder.

The dates from the sculptures at Palenque of AD 700 will require conversion to solar years (equivalent Gregorian years) on a somewhat different basis, for the Maya at this time calculated in Long Count measures identical to how we use these today, that is, by assuming that the year was 365.24 days long. [\[note 15\]](#)

The Chinese *Annals of Shu* record estimated reign lengths, because many were missing when these records were compiled. Dates were estimated in about 200 BC by Chinese historians. If we equate the date of 2357 BC from the Chinese *Annals of Shu*, the date Yao takes the throne, to the date of 2349 BC (the "flood of Noah"), then the first few dates of the Chinese *Annals of Shu* should be moved 8 years into the future. Dates concurrent with the Xia dynasty can probably be taken as correct.

There may be better concordances of the dates than what I have presented here. One of the really suspect dates is Ussher's Tower of Babel event, which he casually places a hundred years after the completion of the "flood of Noah" at "after 2247 BC" -- it should be set in 2150 BC.

To adjust the dates derived from the records of various peoples, I am using Ussher's date of 2349 BC for the "flood of Noah" as an anchor. This is the fall of the Absu which happened because of the electric contact by Venus and which caused a change of the Earth's orbit to near the Moon. The change of the orbit of the Earth is even noted in the Bible when it is suggested that men's lives were shortened after the flood -- the year had become longer. In the *Annals of Shu* Yao takes on the task of calendar reform at this time. In the Babylonian *Enuma Elish*,

Marduk (Jupiter) also establishes a calendar after battling Tiamat. Book 11 of the *Chilam Balam* claims "*and then days of the year were introduced*" as an aspect of the Third Creation. The Third Creation is the event of 2349 BC. [\[note 16\]](#)

The date for the fall of Akkad is archaeologically well-established as 2193 BC, 156 years after the "flood." The period of 156 years is three times the 52-year interval between approaches by Venus -- an interval still seriously observed at a later age by Mesoamerica in AD 1500, but in Tun years instead of solar years. I have calculated estimates of the changing intervals in the appendix "Celestial Mechanics." [\[note 17\]](#)

Recap and Reactions

The 24th century BC was important. The second break with the elder Gods took place during this time, and it happened in the course of a hundred and fifty years. To recap:

- Before the first pyramid was completed at Giza, after circa 2527 BC, Jupiter had cleared the asteroid belt and again developed a coma and tail. "Re" was added to the pharaoh's name. The first six pharaohs of the following dynasty, the 5th (2490 to 2350 BC), built separate sun-temples dedicated to Re -- modeled on the mountainous lower plasma outpouring of Jupiter (the shape of which is called a Benben).
- Before 2349 BC Jupiter seems to have lost its coma tail, perhaps on entering the last outlying clump of asteroids. The Egyptian pharaohs lost interest in monuments to Re. This was followed in 2349 BC by an electric contact with Venus which brought the Earth to a larger orbit, near the existing orbit of the Moon. The *Chilam Balam* claims that Jupiter did not have its lower plasma form ("he was not crying"), when the Moon showed up. This suggests that the Moon showed up later than 2349 BC, although by the content of the *Enuma Elish* this could be questioned
- In 2349 BC the Absu fell, causing a period of extensive rains and storms on Earth (Noah's flood). The *Chilam Balam* places the "second baptism" (the "descent of water from the center of heaven") a hundred years later, but the text clearly deals with the fall of the Absu in 2349 BC. The date selected in

the *Chilam Balam* was retrocalculated at a late date to match a unique Mesoamerican calendrical consideration: it had to fall on July 25th.

- The Palenque inscriptions of AD 700 claim that the three planets, Venus, Jupiter, and Mars were "born" in the newly cleared skies (corrected to 2337 BC), that is, they were clearly seen on the ecliptic, no longer obscured by the rings of the Absu. This is 10 years after the fall of the Absu.
- The plasma mountain of Jupiter returned very soon -- within three days -- after the fall of the Absu. The *Annals of Shu* claims that Jupiter, as Yao, took the throne in 2349 BC (corrected from 2357 BC). Yao will reign as supreme God (emperor of all the world) for another hundred years in China (it should be 199 years). One of Yao's first acts is to correct the calendar, since the length of the year had changed.
- The Palenque inscriptions record that the Moon crowns herself as ruler in 2305 BC, which should be corrected to 2282.6 BC. It is possible that the "crowning" does not mean anything. In the *Annals of Shu* Yao selects Shun, the Moon, to join him on the throne in 2287 BC.

Humans are now ruled by two large globes in the sky, Jupiter and the Moon, possibly of equal size. One is steady and slow, the other is forever busy on a survey of the land (as said in the *Annals of Shu*). The *Chilam Balam* reads, "the entire world was proclaimed by Uuc-yol-zip." Watching the daily changes in the movement of the Moon will convince anyone that the Moon spends considerable time above other parts of the land.



[Image: a victory stele of Naram-Sin, the great grandson of Sargon, named after the Moon -- Sin. Erected after 2250 BC. The two gods shown at the top as stars are the Moon and Jupiter. Jupiter is shown on his mountain. Collection of Louvre Museum.]

- The *Annals of Shu*, state that Yao dies after a long rule. The Chinese scholars of the second century AD estimate the date as 2257 BC, but it should probably be a hundred years later, in 2150 BC -- matching the death of Abraham. (It is uncertain as to what was actually seen.) Ussher places the Tower of Babel incident after 2247 BC. But it was Jupiter which went up in flames in 2150 BC and not Mercury. The *Chilam Balam* places the "fire on high" in the (corrected) double decade dates of 2167 to 2147 BC. The *Chilam Balam* also ties the event directly to Jupiter.

- There was an additional intersection of Earth's plasmasphere with the tail of the plasmasphere of Venus in 2193 BC, causing another Earth shock, a change in the orbit, and a loss of sunlight lasting 200 years. The Second Kingdom of Egypt collapses, as does the Akkadian Empire. The flaming of Jupiter in 2150 might not have been noticed at the latitude of Mesopotamia and Northern Egypt. It is suspected that the shading of Earth by nano-sized carbon particles in the stratosphere may have differing effects at different latitudes.

From the mix of these four records -- the *Annals of Shu*, the Bible chronology of Bishop Ussher, the inscriptions at Palenque, and the *Books of the Chilam Balam* -- it is clear that there is little agreement on when the Moon first showed near Earth, or when it was considered to be established on a regular orbit. There is closer agreement on a date for the fall of the Absu, although the *Chilam Balam* places the event much later, but on purpose. There is more agreement on the date of this last event, the "burning tower." This concludes a century busy with celestial events.

Different people interpreted the events differently, but all of them needed stories and histories to reflect what they had experienced and how things had changed. Most of the "legends" came forth in the years following 2200 BC, although some were delayed by the 200-year drought which followed immediately.

... Egypt

The Egyptians remained faithful to the elder gods, although they no longer confused celestial apparitions with rulership of their lands as they had a thousand years earlier after 3147 BC. The pharaohs of the 5th and 6th dynasty institute a worship of Re, then seem to change it after 2349 BC (for Osiris), to be picked up again later. After Jupiter extinguishes two hundred years later, a new supreme God is added in Egypt, or rather, named. It is Amun-Ra -- "Hidden Ra" or "the hidden sun," as archeologists have it.

Amun-Ra is also spelled "Amen-Ra" and "Amon-Ra," and is also known simply as "Amun." Amun is almost universally identified with the Sun by archaeologists, even though there is not a single indication of this in all of Egyptian writings and inscriptions. The Moon is never seriously added as a God, although today the Moon is almost universally confused (by archaeologists) with Thoth, who is Mercury. In the Ptolemaic era (after 300 BC) the Moon seems to have taken over the identity of Thoth, although the Greeks of that

period still equated Thoth with their Hermes. So do I. The Moon also goes by the name of Aphrodite ("foam born" according to Hesiod, meaning the foam of the sea), and is female. [\[note 18\]](#)

... Babylon

The priests of the city of Babylon, under the dynasty which might have included Hammurabi, and probably after 2100 BC (but possibly a lot later), wrote the *Enuma Elish*, a creation account which raises Marduk (Jupiter) to the status of chief God, by agreement (says the text) of the elder Gods of Akkad and Sumer. The text relates events which had been witnessed (but not recently) as proof of the change: the disappearance of Marduk's garment and its reappearance at his command, the battle with the dragon Tiamat (the plasmoid of Venus), the removal of the Absu (the net), the clearing of the skies, the sighting of the southern stars, the delineation of the zodiac, the placement of the Moon, and the revision of the calendar.

For the Babylonians, and for the older land of Akkad and Sumer, to recognize Marduk as chief of the Gods resolved a crisis in faith, and gave proof that the large red globe in the south, previously standing on a mountain of plasma, along with the Moon which had now appeared, was there by destiny and in agreement with older traditions. Marduk became the most widely recognized God in Mesopotamia, from Assyria to Elam, and retained his status as chief God for two thousand years. Not a little of his status was due to the central political position assumed by Babylon after 2200 BC -- but also because he could be seen yet at that time in the skies.

Because it was probably written 500 years after 2349 BC, the text of the *Enuma Elish* is out of order, even though all the individual elements of the event of 2349 BC are included.

... Bible texts

In the Bible texts Jupiter has become Abraham, who receives a son, the Moon, only in old age, and then nearly sacrifices him on a burning mountain. Similarly to the *Annals of Shu*, Jupiter is held up as the model of good behavior. [\[note 19\]](#)

... Mayan texts

The *Chilam Balam* certainly is the most strangely different from the other texts mentioned above. Even though relating events from 4000 years earlier, it is also consistently the most accurate. It is mostly different in not having an obvious didactic agenda. We are presented instead almost solely with natural history, and a few complaints about the kings and leaders of the past. In the face of the new Christian religion, the *Chilam Balam* only seeks to prove that the older worship of "these stones" might simply have been a mistake.

"Very rightly they worshiped as true gods these precious stones."

"These stones" were volcanic concretions, noted in the *Popol Vuh*, which were held to be the spirit containers of the earlier Gods which had roamed the skies. One section of the *Chilam Balam* even equates the planetary Gods before "creation" as stones inhabited by the spirit of the Christian God.

... China

The Chinese would recall Yao and Shun as exemplary figures who instituted good government. Nothing is said of the burning of Jupiter. The Xia dynasty, which followed the reign of Yao and Shun (after 2205 BC), took control of the land and the people, and made it through the period of bad weather.

China turned secular, although it remained nominally monotheistic, but never again concerned itself with signs in the sky. All the subsequent rulers were "kings." The title of "emperor" -- a ruler over all the Earth -- was not used again in China for the next 2000 years.

The Moon Dies

In 2193 BC Venus made electric contact with Earth again, the last time in this era. As I noted in the previous chapter, both Akkad and the Old Kingdom of Egypt come to a close. There is very little else we hear from the Eastern Mediterranean region, or nearly anywhere else, about this event, except for the failure of agriculture.

We have only very slim chronological data which point to what actually happened. The contact by Venus was not accompanied by impressive celestial events, and nothing was recorded in legends and stories, unlike the earlier contact of 2349 BC. What I believe most likely happened in 2193 BC, is that Venus, in this instance being considerably closer to Earth, made a compressive

contact to land, followed immediately by lightning strikes to land which resulted in large blazing forest fires which in turn lofted ashes and particulate matter into the stratosphere, blocking sunlight for the next 200 years.

The Earth's orbit again increased, to 270 or 280 days (I suspect 273 days). At the same time the Moon relocated further from Earth, taking 28 days to complete one rotation (month) around the Earth. The records of the Xia dynasty tell of the removal of the Moon (Shun) from nearer to Earth to higher up at the conclusion of his tasks, suggesting that he died.

"In the thirtieth year of his age, Shun was called to employment. Thirty years he was on the throne (with Yâo). Fifty years afterwards he went on high and died."

"Going on high" is not likely to be the sudden disappearance of the coma of the Moon, although this should be kept in mind as a possibility. The Moon may have had an atmosphere at an earlier time, before meeting up with Earth. But I do not think the Moon ever supported much of a coma, being a small rocky planet without a magnetic field, and having spent perhaps millions of years at the same distance from the Sun. (The Moon is older than the Earth.)

If, in effect, the Moon became smaller, it would be because it moved further up into the sky. Adding the 30 plus 50 years to the date when Shun was called to employment, 2277 BC (corrected from 2287 BC), places the "going on high" of the Moon in 2197 BC. This is four years before 2193 BC, but, given the guesswork at chronology by the Han dynasty (and me), it is close enough to suggest that this can be linked to the fourth approach by Venus in this era.

The reason for suggesting a year of 270 or 280 days with ten months of 28 days, is that a ten-month year and a 28-day month start to show up in this era. The Shang dynasty of China (although after circa 1700 BC) records 28-day months and 27-day months. I suspect from this, that the year may have been at some value in between, and suggest it may have been 273 days (which also solves some problems with the Olmec calendar). Ten lunar months would likely have been in use.

We have little information on the ten-month year, except that even today some people count only ten months in the year, stretching the last month of each year to 90 days. Additionally, a few calendars kept counts of 10-month cycles, even when there were 12 lunar months in the year. In India the sky was mapped to 28

"lunar mansions" a concept still in use today. (For additional information see Appendix A, "Chronology.")

In the following years the southern stars were mapped, calendars were adjusted, commerce and trade were expanded, and histories were created. Politics changed and developed as they always had, but the relationships with the Gods remained stable.

The Return of the Axis Mundi

Since in 2349 BC the Earth increased its orbit, it would again have to equalize its charge to match the new orbital location. And do so again in 2193 BC. Again this would be accomplished through an influx of electrons at the magnetic poles. The plume of plasma in glow mode which had appeared directly after 3147 BC, would return, and probably at both poles.

After the battle with Tiamat, Marduk sets his bow (classically identified as "a rainbow") up in the heavens as a sign of triumph. The bow is the south polar plasma plume. It is a bow standing up, not hung horizontally across the sky from pegs like a rainbow.



[Image: Shamash (Jupiter) with his banded head wrap, seated on his temple seat and holding a "shen." The "shen" dates the iconography to after 2914 BC. The south polar plume rises above Jupiter (and thus the ecliptic), dating the image to after 2349 BC. A small figure at the end of the plume controls the rotation of the southern stars. The terminating ball or ring of the plume is here interpreted as a manikin. The table and pillar likely are architectural details, like the God's seat, which latter reads "temple." The humans are identified and place this Babylonian cylinder seal in the 9th century BC. Collection of the British Museum.]

The Maya *Chilam Balam*, which lists the four trees which hold up the heavens in each instance after a recreation of the world (a change in the orbit), speaks directly to the tree of the south as part of the event of 2349 BC (the "flood of Noah," and the Maya "third creation").

"The planted timber was set up. Perishable things are assembled at that time. The timber of the grave-digger is set up at the crossroads, at the four resting places."

-- Ralph L Roys *The Book Of Chilam Balam Of Chumayel* (1933)

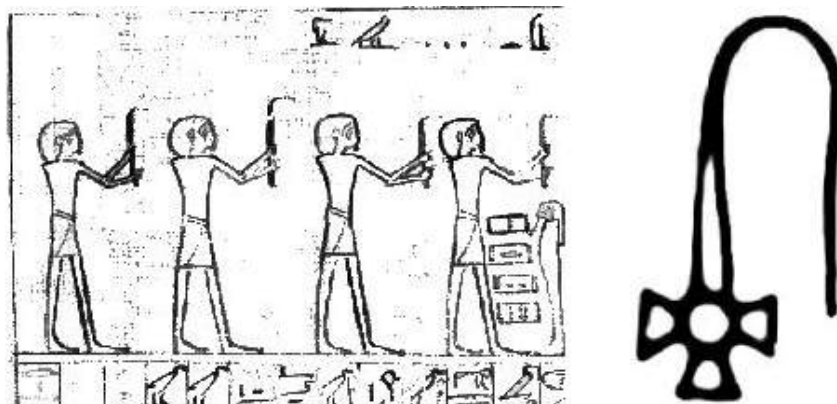
The text is not exactly lucid, but see the chapter "The Chilam Balam" where this is further explicated. The first "planted timber" may be the plasma plume at the north magnetic pole. The second one, set up at the "crossroads" is the plume of the south (viewed from north of the equator).

The "crossroads" is the intersection of the ecliptic and the equatorial, both of which were visible, and thus the equinox. The "perishable things" are the Pleiades, held to be celestial seed corn by the Maya. The "grave-digger," Roys notes, can also be understood as "hider," someone who hides objects. I would suggest this as applicable to the Absu. Note the phrase "at that time." A new condition is being described. From the further context of the *Chilam Balam*, it is, without a doubt, the event of 2349 BC.

It is further of some interest to recall that this event, the sudden appearance of a southern plasma plume, is described in the *Popol Vuh* as the attempt by the Four Hundred Boys to impale the mountain giant Zipacna in a grave he has inadvertently dug to hold the center post to their house. Zipacna is Jupiter. He appeared in the depression of the Absu on about September 8th (two nights after the fall equinox). Once the Four Hundred Boys are thoroughly drunk, Zipacna enlarges himself and "blows up the house."

The "house" shape of the Absu would result because the Earth's axis had initially bent away from the direction of the Sun when the shock was received from Venus. This should be remembered, it is integral to any recollection of the 3-day event. The image of the Absu would thus have been rounded again like a hut, with the Earth's shadow creating what looked like an arched doorway to this hut. On the third day, with the axis of the Earth sufficiently recovered from the application of the gyroscopic reaction torque, this imagery would have changed back to a gap -- as if the house had exploded. The Four Hundred Boys become the Pleiades, now seen among the stars directly above the gap of the exploded

house and above Jupiter which is seen to rise from the gap also. See the chapter "The Popol Vuh." The rising or resurrection of Jupiter from a cleft in the Earth -- the old Absu at the time of the equinox -- reappears in Maya iconography, as Jupiter rising from a crack in a turtle carapace.



[Image: Egyptian: Flames of the four cardinal directions; brazier glyph detail.]

References to the polar plasma plumes show up also among the spells of the Egyptian *Book of the Dead*.

"Who then is it?"

*"Those above their braziers -- it is,
the image of the Eye of Re, together
with the image of the Eye of Horus."*

"Others say:

*It is the two mighty and great cobras
on the brow of thy father Atum."*

"Others say:

It is his two eyes which are lacking in his head."

"Who then is he?"

It is Horus with the Two Eyes."

-- E. A. Budge, *The Egyptian Book of the Dead* (1895)

This describes the two ball plasmoids (as eyes), which existed at the ends of the polar plumes. Sycamore trees seem to have been used for the "plumes" of the east and west cardinal points, at times as dual trees. The guardians of the east

and west, the Akeru, are depicted as lions (not only in Egypt, but also in Akkad). Notice the implication of these texts that the chief God of the Egyptians is absolutely gigantic in size; he spans all of the heavens.

"Lacking from his head," refers to Jupiter in his later form, when the "eyes," originally formed by the equatorial toroid are no longer visible -- after leaving the asteroid belt.

The flaming braziers, with smoke which curves back to point down, are usually presented as four in number, but at times as six. There are depictions of six braziers at the edges of a rectangular "lake of fire." This last, the lake of fire, remains as an obstacle to reaching the underworld throughout all of the Book of the Dead.

In Southern Mesopotamia depictions of the east and west plumes appear on cylinder seals as flags (vertical banners), mounted to poles which are bent back somewhat, with a circle at the top (called "ring-topped standards" by archaeologists). These forms appear regularly, and have also been called "doorposts" both in original Akkadian texts and by archaeologists.



*[Image: Mesopotamian circle plumes, depicted on a vase.
After H. W. F. Saggs, "Babylonians" (2000).]*

On one cylinder seal the plumes are depicted adjacent (left and right) with a reed hut with rays emanating from its roof. They are "associated" with Inanna (Venus) in that the cuneiform symbol for "Inanna" has been added. The house is likely the Absu, so that in this case the "circle plumes" represent the plumes of the east and west cardinal directions. There is a third plume depicted at the opposite end of this seal (the north).

The circles at the tops of the east and west poles or plumes are the visual intersection of the charged toroid above the Earth's equator (the Van Allen belt) and the extended shadow of the Earth at the time of the equinox. The Van Allen belts are far enough from Earth so that they would be seen (when they were periodically seen) at the geometric position of the equatorial -- a location which would not be reached by the rings around the Earth, except at the east and west cardinal points.

Depending on the density of the charge level in the Van Allen belts, assumed to be in glow mode after a transition of Earth to a new orbit, the edges might show very distinctly. This would account for the fact that the east and west plumes at times are listed as two at each cardinal direction, like the dual Sycamore trees. (Dual trees at the north and south cardinal point are not a surprise.)

The Tower of Babel

An incident, and possibly this very incident, following 100 or 300 years after the fall of the Absu, generated the initial version of the "Tower of Babel" stories throughout the world. The Tower of Babel story is interesting because it occurs everywhere in the world. A "Tower of Babel story" was told to the invading Spanish in Central America in AD 1500. It was known also among North American tribes. Around the world, the stories all have the same three elements: a burning (or collapsed) tower whose construction is attributed to humans, a confusion of languages or loss of memory, and the dispersal of peoples. It seems almost certain that the Tower of Babel event was the last spasm of Jupiter before diminishing to just a star-like pinpoint of light.

However, quite a few of the stories attribute the burning tower to the planet Mercury. This might be correct and I'll discuss this below, even though the incident involving Mercury happens 2000 years later. There are, however, only

hints in mythology that it might have been Mercury. Surely the *Chilam Balam* would have had reference to Mercury, since the story is widespread. The *Chilam Balam* says nothing. It only reports that "the face of the sun" -- the midnight sun -- was "taken from earth." "The Sun" is Jupiter. The Maya or Olmecs would not have made a mistake in identifying this planet.

Ussher dates the Tower of Babel event to "after 2247 BC." According to Velikovsky, the medieval chronographer Abraham Rockenbach, in *De Cometis Tractatus Novus Methodicus* (1602), places it in 2060 BC, but attributes it to a comet seen over Egypt.

"In the year of the world one thousand nine hundred and forty-four [2060 BC], two hundred and eighty-eight [288] years after the Deluge, [here held to be 2349 BC] a comet was seen in Egypt of the nature of Saturn, in the vicinity of Cairo, in the constellation of Capricorn, and within the space of sixty-five days it traversed three signs in the sky. Confusions of languages and dispersals of peoples followed. On this the text of the eleventh chapter of Genesis speaks in more detail."

-- Abraham Rockenbach *De Cometis Tractatus Novus Methodicus*, in Velikovsky, unpublished documents, at <http://www.varchive.org>

The Tower might have been a comet, but it is not Jupiter. Jupiter does not traverse three zodiac signs in 65 days. The date of 1944 AM is based on starting a count in 4004 BC. The date 288 years earlier is the Deluge of 2348 BC, the classical date of the flood of Noah. Both of these match Ussher's somewhat later chronology.

Velikovsky, in a footnote to an unpublished document ("Mercury"), quotes from the *Bhagavatamrita* that "Buddha [Mercury] became visible the 1002nd year of the Kali yug." The Kali era (Kali yug) started in 3102 BC, as retrocalculated as a conjunction of planets. The 1002nd year is 2100 BC. This is likely the second showing of Mars and Mercury (to be detailed in a later chapter) in 1936 BC, which caused the destruction of Sodom and Gomorrah.

Rockenbach's date of 2060 BC does not match Ussher's estimate of "after 2247 BC" for the Tower of Babel incident, nor a Mesoamerican date for the "fire on high" which I have placed with some confidence in 2150 BC -- in Katun 8-Ahau (2.10.0.0.0) dated 2167 to 2147 BC (corrected dates). This last date, together with the Kali yug date, correspond to three other dates for the extinction of Jupiter: the mention by Gudea in a tablet or prism of the "brightness of

Ningursu," dated to circa 2150 BC, and the historical notice in the *Annals of Shu* written during the Xia dynasty of a celestial event in about 2155 BC. Details of the mention in the *Annals of Shu* follow.

Of the four records of the Xia dynasty in China (2205 to 1767 BC) listed in the "The Books of the Hsia [Xia]" (of the *Annals of Shu*), there is one, the last, dated to 2155 BC, which mentions a "celestial phenomenon." We should ask why, from among the hundreds of eclipses which (may have) happened in China during this long period of history, only this single event, "a celestial phenomenon," was deemed noteworthy enough to record and transmit to the future. [\[note 20\]](#)

Although Mesoamerican and Chinese sources speak to a crisis of Jupiter, almost all sources on the "burning tower" speak of an incident involving the planet Mercury. In the Americas, at first contact with Europeans, stories of a "Tower of Babel" event were extant. Elsewhere, in Mesopotamia, Greece, and Egypt, there are dozens of documents in antiquity, plus additional tales and legends spanning four continents, which all relate the loss of memory or changes in languages to Mercury -- the Gods Hermes, Thoth, Nebo, Odin. In fact, the status of Mercury as an important God dates from remote antiquity (around 2100 by my estimate).

Velikovsky placed the event "after the flood which ends the age of Jupiter" -- by which he would likely mean the Noachian flood. In the late legends of Egypt, which recall the flood of Noah as the bloodbath (and beer bath) of Hathor, the God Ra abdicates and turns his duties over to Thoth. That would have been, as best I would guess, after 2150 BC. That date agrees with the first appearance of Mercury as a God to which attention needed to be paid -- in the 1002nd year of the Kali era, 2100 BC, and certainly coming close to Earth starting in 1936 BC. The "first appearance" is thus likely to be the coincidence with the flaming and extinction of Jupiter, when his duties are turned over to another planetary God.

Let me point out the obvious: Velikovsky's choice of a date was influenced by Ussher's chronology. Ussher's pick of a date was in consideration of the Bible story of the Tower of Babel. The Bible in turn could not admit that Abraham had gone up in flames 199 years after the flood, or, for that matter, that Abraham was born two days after the flood of Noah, so that the Tower of Babel text as presented in the Bible ended up being based on a much later event: the real Tower of Babel event which is dated to 686 BC.

Why was the Tower of Babel story included in the Bible at all? Mainly because it was part of the sacred history of the world, of which the Hebrews were the recognized keepers. But, perhaps more importantly, everyone (at the time of the

final composition of the Bible) knew it had happened: a tower to heaven was built, it caught on fire, and it burned. Other people and other tribes would hold the Jews accountable for an accurate history of the world, especially with their claim that only their God was the true God of all history. In antiquity the books of the Torah were used as valid sources about the past by a number of other nations.

Mercury

I will now turn to Mercury, and introduce some facets of this planet. Although only somewhat larger in diameter than the Moon, it has 4.5 times the mass. Mercury is half the mass of Mars. We know that Mars in 747 BC budged the Earth to a larger orbit and longer year, by 930 thousand miles (1500 thousand km) and 5.24 days. It is quite possible that Mercury, with half that mass, never "hit" the Earth with a repulsive electric shock serious enough to move Earth in its orbit. At least, we have no calendrical record. But it could have involved a change in eccentricity. This would change the kinetic energy of the Earth without changing the orbital period.

It seems certain, also, that Mercury overran the orbit of Earth since remote antiquity. That Mercury was seen on a wildly eccentric course is almost certain for several reasons. First of all, Mercury still has the most eccentric of all planetary orbits. Mercury is the one planet which nearly doubles its distance from the Sun over the course of its 88-day orbit. No other planet comes close to having such an eccentric orbit, and we could be assured that, if Mercury had been seen in both the northern and the southern skies 3000 years ago, when the orbit of Earth was still 30 percent less than it is today, Mercury would have regularly reached beyond the orbit of Earth. This corresponds to the fact that Mercury was assigned in antiquity, almost universally, the duty of messenger of the distant Gods Saturn and Jupiter -- the planets remaining on the ecliptic of the southern sky.

Secondly, the God Mercury had the "wings" and "snake tail" of the "caduceus" -- an indicating that it moved on a highly elliptical path, behaving like a comet which loses and regains a surplus of electric charge with each turn around the Sun. The disk with wings and the extrusion at the end was a glow mode plasma discharge generated as Mercury traversed the electric field of the Sun. But, whereas Venus sported an immense tail (30 million miles, 48 million km, today, in dark mode discharge), Mercury, which is much smaller (only 40 percent larger in diameter than the Earth's Moon), would most likely have had a

relatively short plasma tail but with wings as the north and south plasma plumes at the poles (which, by the way, were seen sideways as Mercury passed close to Earth: one above, one below).

The "disk" of the caduceus is likely to be its spherical coma, which could be supported by Mercury since it had a substantial atmosphere (it still has a remnant atmosphere today). Mercury has only a very weak magnetic field, but apparently it was enough in the past to allow the part of its plasmasphere facing the Sun to light up in glow mode. It looked like a musical instrument, and music is attributed to Mercury. It also looked like a bow strung with an arrow. Mercury was identified by the Greeks as Apollo, "the archer God who shoots from afar." The name Apollo was transferred to the Sun after Classical times. [\[note 21\]](#)

And lastly, again, we have the many descriptions from antiquity that Mercury was the messenger of the Gods -- swinging from aphelion beyond Earth's orbit to perihelion with the Sun after passing by Earth. If Mercury were on an orbit which reached from the Sun to a location beyond the Earth, it would look as if he were visiting the departed Gods in the far reaches of space. It would have been logical to assign Mercury the role of messenger. As such, Mercury was charged with the task of caretaker of mankind.

As I will suggest in the chapter "Exodus," when it was certain that all the Gods had left, Mercury as the caretaker God was acknowledged as the intermediary between the distant Gods and mankind, a God who was charged with all the arcana of magic, special materials, writing, and language. That God was the Egyptian Thoth, Sumerian Enlil, Greek Hermes (originally Apollo), Roman Mercury, and the Norse Odin -- each of which can be identified with the planet Mercury.

In Roman times, some Northern European tribes declare Odin as their primary God. That is really strange if Mercury had always behaved as today -- only seen for a few minutes each night above the east or west horizon near the rising or setting Sun. Mercury was the last planetary God, except for Mars and Venus, who still visited long after the other Gods had retreated. But, unlike Venus, he seemed immensely busy, crossing Earth's orbit every year and a half. But when Mars was still active in coming close to Earth, the destructions by Mars (especially in the Eastern Mediterranean) completely eclipsed notice of Mercury when both showed at the same time.

The Burning Tower of Mercury

Since there are universal memories of the Tower of Babel event, it was either an absolutely stupendous event, or a recent event. The blood in the sky and the fall of the Absu in 2349 BC was a stupendous event and was universally remembered for 2500 years. The Tower of Babel, if assigned to Mercury, could not have been at all remarkable by comparison. I would therefore suggest instead that the event was recent and, in fact, much more recent than Ussher's estimate of "after 2247 BC" -- it happened on March 23, 686 BC. The basis for this date will be developed in a later chapter.

In identifying a plasmasphere contact in 686 BC, I am continuing my claim that every catastrophic event of the past should be able to be clearly identified, graphically visualized, mechanically reconstructed, dated, and located by a consideration of orbital parameters. This is not to say that tales, stories, and myths were not recycled, so that the extinction of Jupiter in 2150 BC became a foretelling of the event of 686 BC, and the fire on Mercury in 686 BC provided the details for the Bible's description of a similar event 2000 years earlier.

Where does the "burning tower" enter into the picture? It was likely a plasma discharge between Earth and Mercury. I would assume that, after the plasmaspheres touched, and a shock was exchanged, a charge imbalance between the planets induced a stream of plasma in glow mode to reach from the ionosphere of Earth to the cloud cover or surface of Mercury -- in effect a lightning strike. (The southwestern prairies of the US burned up directly after the shock.)

The shock between Earth and Mercury happened as Mercury passed in front of Earth between Earth and the Sun. The distance between the planets was likely equal to the distance between Earth and the current aphelion of the orbit of Mercury. That represents a distance of 48,000,000 miles (77,000,000 km). That is the location that Mercury returns to today with each orbit around the Sun.

There would have been physical effects, an Earth shock and earthquakes and fire falling from heaven, but not nearly to the extremes of what was experienced when Venus made electric contact in 2349 or 1492 BC. Since the mass of the Earth is 20 times the mass of Mercury, it is unlikely that the Earth's orbit would be significantly affected. And, in fact, we have no record of a change in the length of the year.

Mercury, however, would likely have received a shock which might have thrust it far away from Earth. The shock location of 686 BC on Mercury can be identified; it has been known since the first spacecraft flyby in 1970. The

contact location with Earth is on the North American continent. The chapter "Destruction by Mars" will pinpoint the contact location.

The plasma charge exchange would have been limited because Earth had been in its present location from the Sun for a thousand years, except for the minor change in orbit of 747 BC. Mercury similarly had moved on a course from near the Sun to the asteroid belt for nearly 3000 years. In the case of Mercury, its charge would have been normalized to a value close to what was held by the Earth, since Earth was located about halfway along the elongated orbit of Mercury.

The plasma contact (exchange of charge) might have involved arc mode exchange, but Mercury would quickly have distanced from Earth and the plasma exchange would have switched to glow mode. At that stage it probably would have assumed the shape of a steep triangular mountain -- similar to the pyramid-shaped "mountain" of plasma between Earth and Mars at the time of Horus after 3100 BC -- but at this time the mountain was understood as a man-made tower that could be seen as being constructed over a period of time (perhaps only a day or so) as it extended upward.

The tower would eventually have reached to the aphelion location of Mercury's orbit, 48 million miles (77 million km) from Earth. The tower would seem to grow from Earth as the plasma stream changed from dark mode near Earth to glow mode further away. Possibly the "tower" was constructed in the reverse direction (that is, constructed from Mercury to Earth). The stream of plasma would increase in density on approaching Mercury -- an increase in electric current -- so that the mode changed to arc mode on reaching the surface of Mercury. There was the start of the fire.

During the earlier visits of Horus, no man-made pyramids or ziggurats had been built yet, and the very similar phenomenon at that time was described as the mountain built by the god Horus -- "who rises on *his* mountain." But towers or pyramids and ziggurats had already been erected by the time of the approach of Mercury and the idea that this was a tower constructed by humans was well within the imagination of those who were watching. In Mesopotamia the destruction of the tower had precedent in ziggurats which had been destroyed by massive lightning strikes.

The tower burned and collapsed. The tenuous atmosphere of Mercury still holds vast amounts of hydrogen and helium, as well as oxygen and sodium (which, because of its small size, would not be the case if Mercury were billions of years

old). Hydrogen gases might have burned when the plasma stream connection from Earth turned to arc mode at the strike points on Mercury. The burning might have extended long past the time of the initial plasma contact.

The burning tower legends worldwide hold that people everywhere lost their memory or changed their language or both. The ubiquity of this detail suggests that it was fact. If we take this universal story at face value, it would suggest short-term amnesia, perhaps due to some sort of electro-shock, induced by the sudden change in the electric potential of the Earth's surface. Perhaps the plasma contact with Mercury fried our brains.

Mercury also is the only planet with a (slight) magnetic field to have made a close approach with Earth (even though its magnetic field is weak, and should not exist at all). This fact may explain why this incident was physiologically different from earlier and later approaches and plasma contacts with Venus and Mars, neither of which have a magnetic field. The effect of an imposed planetary magnetic field will not be felt, because planetary magnetic fields are weak. But the flow of electricity toward the Earth's crust creates a magnetic field also.

The electric contact with Mercury was (possibly) at a closer distance to Earth than any of the half dozen contacts by other planets, with the exception of Mars. Mars completely entered the Earth's plasmasphere, and came so close that the devastating effects were local, extending perhaps only a few hundred miles north and south of its path. Mercury's contact, by comparison was global.

It is perhaps also likely, however, that during the plasma contact with Mercury, a time-varying electric or magnetic field was experienced. A varying magnetic field is known to have physiological effects. (See the endnotes to the chapter "The Start of Time.") This would also suggest another possibility for the "loss of memory" or "loss of speech." The plasma contact with Earth may not have been an event which took away memory, but which instead caused speech and memory to falter, thus bringing these to awareness in people worldwide. Perhaps this also brought an awareness that other people speak differently. [\[note 22\]](#)

The experience with the failure of speech may have forced people to write down their stories which previously had been passed along by word of mouth. The stories could thus be rendered correctly with future retellings. They might have also become aware that "old stories" could be "placed" in an imagined "earlier time." With books of recounted stories we immediately jump to the matter of

primacy -- there are earlier and later versions of events. That forces a new consideration of historical time.

It is also interesting to consider that shortly after the event of March 23, 686 BC, the output of the Sun changed radically after June of 685 BC. Within two or three generations after 685 BC we start to see the first attempts -- worldwide -- of a separation from a mythological past. This happens in physics, in philosophy, and in religions.

The dispersal of people in the Tower of Babel stories may or may not have happened. A few stories (as with some from North American Indians) do not include the details of a dispersal. It may have been that, instead of a dispersal, people were suddenly able, for the first time, to imagine the whereabouts of others.

The dates of 2060 BC or 2247 BC for the Tower of Babel event are incorrect. The date of 2150 BC represents the extinction of Jupiter, and became only a pre-telling of the Mercury event of 686 BC.

The First Histories

The suggestion made above follows from consideration of the onset of the development of subjective consciousness, nominally placed in circa 2000 BC or 1500 BC.

It is from Egyptian, Mesopotamian, Indian, and early Greek and Roman sources that we can extract the most details about the celestial dramas and the corresponding human activities. Egyptian sources are primarily from tombs, since texts on papyrus have not lasted (although we have some papyrus texts dating back to 2400 BC). Egyptian sources have a continuity over more than 3000 years -- a continuity unequaled anywhere else. This is so because Egypt was the least affected by the worldwide floods which accompanying the three major catastrophes, and its land has retained productivity in the face of permanent climatic changes elsewhere.

Mesopotamian texts were inscribed on clay tables, more stable than papyrus (or bamboo slivers, as in China) and even more permanent when inadvertently fired to baked clay due to the burning of a palace or town. The clay tablets date back to 2700 BC and earlier.

The remaining sources elsewhere are textual recollections made after 700 to 500 BC from earlier verbal retellings. Indian sources are plentiful but are poetic representations of past events, recorded for their exemplary religious value and not transcribed to texts until very late. For China almost identical conditions are true. Greek and Roman sources also date exclusively from the period after 650 BC.

Inca sources in South America are silent. There is some evidence suggesting that literature may have been suppressed before the arrival of the Spanish.

Mesoamerican sources at one time graphically recounted the complete history of the world dating back 40 thousand years, including the birth of the Gods and their abandonment of Earth, but the records are clouded by a displacement of thousands of years, awaiting the invention of a script by the Olmecs and its full development by the Maya. The texts are now lost, destroyed by the Spanish invaders. Only recopied snippets survive. Yet the *Popol Vuh*, written circa AD 1500 in Central America, and thus 13,000 years after the "first creation," frequently recounts events with an unrivaled clarity.

For the rest of the world, however, many of the specifics of the genesis of the Gods and their abandonment of Earth are forgotten and today, thousand of years after the Gods left, we are presented with a confused set of oral histories offered as creation myths and tales of the stupendous deeds of forebears from hundreds of separate and isolated societies throughout the world. The actors in these dramas are varied, and the actions seldom make sense and offer no lessons, but they all involve the same themes, and the consensus in the remaining details, even after the passage of thousands of years, is astounding.

Almost everywhere the legends and records of the past date from after the fall of the Absu (2349 BC), and after the extinction of Jupiter (2150 BC). It may have been the loss of these last images of the "Era of the Gods" which created the impetus to start an historic literature. These events fall at a watershed in historical consciousness for it is followed soon by a profusion in the composition of legends and records everywhere. At least, this is true of Mesopotamia, but also of India and China.

In Egypt, vernacular narratives about previous earth-shaking events appeared much later. These narratives only show up in texts on tomb walls during the New Kingdom (1327 BC through 1136 BC), rendered as fashionably "old," that is, in the style of the Middle Kingdom, 2000 to 1500 BC -- the period following the events of the fall of the Absu. They are stories of previous destructions of

mankind, not unlike the epics being written in Sumer, but unlike any text ever created in Egypt up to that time.

The composition of the earliest Hindu scripture, the Rig-Veda, can be placed before 1900 BC from geographic references to a location in Northwestern India adjacent to the Sarasvati river, which is said to have dried up over a period of 300 years after 2200 BC. The Sarasvati is held as the center of civilization in the Rig-Veda, although it may have been a mythological river.

The records of China were collated circa 550 BC as the *Annals of Shu*, transcribed from older sources. Only the first two sections of the *Annals of Shu* are recollections, dating back to 2357 BC. All the remaining sections of the *Annals of Shu* were written contemporaneously with the events they describe, and all these date to after 2200 BC. The first record is "The Speech at Kan" which can be dated to the period of 2188 to 2160 BC.

The script of Sumer, which had been used only for the most mundane record-keeping for 5000 years, was suddenly, after 2200 BC, used to record older extant stories like the *Epic of Gilgamesh*, to compose in Akkad (almost out of thin air) the *Enuma Elish* creation myth, and to write lengthy declaratory texts like the Code of Hammurabi (circa 1700 BC, revised chronology). Although the texts of the narratives are often attributed to much earlier times because of their contents, they all date from within a few hundred years of 2200 BC to 2000 BC.

With the composition, in about 1750 BC, of the Babylonian *Enuma Elish*, Jupiter became the first conceptional -- philosophical -- God. Except, of course, that he could still be seen, and remained the brightest star-like object in the sky. This is still so today. [\[note 23\]](#)

The Return of Mars

The Early Bronze Age is a generic name for the period of about circa 2000 years BC, but the date varies from one region to another because the "Early Bronze Age" depends on what people were manufacturing. For our purposes, we can take it to mean approximately 2000 BC to 1800 BC, for the region of the Middle East which includes Canaan, Anatolia, Syria, and Mesopotamia. Dates this far back are not well established.

My interest in this period stems from the suspicion that perhaps Mars had again cruised close to Earth and caused extensive destruction, like it had between 3067

BC and circa 2750 BC. This is, in fact, testified to, and not only in the Middle East, but apparently worldwide.

"... almost every one of the flourishing Palestinian cities was destroyed at the end of the Early Bronze III period. The succeeding era, Middle Bronze Age I, ... was characterized by a non-urban pastoral society."

-- Damien Mackey, in "The Old Kingdom From Abraham to Hezekiah, A historical and stratigraphical revision" (2002)
http://www.specialtyinterests.net/old_kingdom.html

Damien Mackey is here pointing up information originally compiled by Claude Schaeffer in *Stratigraphie comparée et chronologie de l'Asie occidentale* (1948), a source mentioned earlier.

After mentioning 2400 to 2300 BC, Schaeffer records a date of 1700 BC when many urban centers in the Middle East were destroyed. The date of 1700 BC is one from his series of dates which cannot easily be moved to a later period by imposing our knowledge of the fictional Greek "Dark Ages."

To be included in Schaeffer's compilation the disturbing elements had to include earthquakes and firestorms. This would signify close contacts with Mars -- very close. This had been the case for a period of 300 years some 1100 years earlier starting in about 3070 BC. This would happen again for a period of (only) 120 years, some 1100 years later, starting in 806 BC during the time of the prophets of Israel (detailed in a later chapter).

Schaeffer's dates have been summarized, expanded upon, and corrected by a number of people. I will give examples, starting with Geoffrey Gammon, writing in "Bronze Age Destructions in the Near East" (*SIS Review*, 1980).

Gammon notes that for Ugarit, the first incident of destruction is dated to 2300 BC. Schaeffer claims for this, and many subsequent destructions, that earthquakes were at cause, despite the fact that earthquakes do not extend (as he even notes) over distances of 600 miles (1000 km) with equally destructive results. They do not extend even 100 miles. Gammon points out fire, too:

*"As Alfred de Grazia has argued in a highly original and challenging article published in **Kronos** a few years ago, the severity of the conflagration which destroyed Troy II, to which the thickness of the layer of calcined debris or burnt ash 15 to 20 feet thick [5 to 7 meters] bore*

eloquent witness, indicated that whatever natural disaster overwhelmed the city must have been of massive, even catastrophic, proportions."

Gammon here references Alfred de Grazia in "Paleo-Calcinology: Destruction by Fire in Prehistoric and Ancient Times", *Kronos* I:4 and II:1 (1976). De Grazia has detailed this also in *The Burning of Troy* (1984).

De Grazia notes that the evidence of fire..

"... has sometimes, with less than complete evidence, been interpreted as the work of torch-bearing invaders. For example, James Melaart uses the convenient phrase 'whether by accident or by enemy action' to describe the destructive combustion of Troy IIg. Earthquakes, too, are invoked with some frequency, although a determination that a fire is an effect of an earthquake is by no means simple."

Another who has expanded on Schaeffer's original data is Moe Mandelkehr, writing in "An Integrated Model for an Earthwide Event at 2300 BC" (*SIS Review* 1983), and three additional articles to 1999. Mandelkehr's first article is completely shrouded in caveats, one of which reads as:

"... there is no intent on my part to argue that all site destructions or cultural changes took place simultaneously at 2300 BC, or at any other specific point in time around 2300 BC. Even under conditions of wide area crustal stresses, earthquakes still occur fairly locally so that site destructions would be expected to be spread in time."

This last quote would have been added by anyone who considered the destructive Earth shock of 2349 BC, or would have been added as a warning to any other collection of similar data. Any sensible person would do this, and of course it would be phrased exactly as presented above -- that earthquakes might be many, but *certainly* would be expected to be distributed over time. And that is completely wrong in this instance. In 2349 BC, the destruction everywhere was simultaneously.

The Earth shock of 2349 BC, which I have already presented, was so outstandingly frightful and impressive, that it was recorded in nearly identical "legends" worldwide, and long afterward, so that in AD 600 the Irish still weave it into their history of St Patrick, and the medieval epic poem *Beowulf* recounts the timing of the event with precision. The shock of 2349 BC and the following shock of 2193 BC were singular and instantaneous over a very large area,

encompassing perhaps as much as half the circumference of the Earth. The initial shocks would have toppled cities and citadels, and would have been followed with lesser aftershocks for some time.

This was followed some 250 years later with additional nearly instantaneous events, probably at intervals of decades. These resulted from destructive sweeps of Mars close to Earth between 1936 BC and sometime in 1700 BC. (These dates will be developed below.) These were also nearly instantaneous over very large spans of territory. The cities where Mars passed close by -- perhaps a few hundred miles north or south of its path -- were given only minutes notice. Mars passed the Earth's surface at the speed of rotation of the Earth, which would be about 500 miles per hour (800 km per hour) at a mid-latitude. Along the path underneath Mars there would have been a gigantic moving fire storm, spreading flames left and right (north and south), which incinerated everything, even melting the very surface of the Earth, and sucked the burning material up into a hurricane-sized tornado. The agent of the fire most likely consisted of ionized and electrified blazing dust from the surface of Mars.

The traveling electric arc of the tornado would have paused on high places, which is where citadels had been built. The pause would be caused by the fact that the next location after an elevated spot would represent a longer electric conduction path for the arc. In pausing the arc might have extinguished locally, to start up again further along. Where it stopped and extinguished, the suspended debris of burnt material and soil would dump. In the case of Troy, at a later date, this reached a depth of 15 feet (5 meters). To assign such fire evidence to marauding aliens is sheer lunacy.

What is instructive about Mandelkehr's articles is that he assigns the destruction primarily to fires. However, he relentlessly dates all of his destruction to 2300 BC. I'm certain that this is incorrect. It confuses the event of 2349 BC with other and later disturbances. I have discussed Mandelkehr's book *The 2300 BC Event* earlier in this chapter. [\[note 24\]](#)

Sodom and Gomorrah

Let me now introduce Sodom and Gomorrah with a quotation from E.J. Sweeney, "Abraham in Egypt" in *SIS Workshop* (1986):

"Genesis informs us that shortly after Abraham's expulsion from Egypt, the world witnessed a terrifying natural catastrophe. Fire and brimstone, it

was said, fell on the Earth and consumed large areas of land in a general conflagration. The cities of Sodom and Gomorrah were obliterated from the face of the Earth; not one stone of them was left on top of another. Genesis imaginatively portrays the catastrophe as a punishment from God on the immoral inhabitants of these cities."

It was as bad as it sounds. Five cities were completely obliterated. There are only scant traces left today. These include an extensive cemetery of 500,000 graves at what is assumed to be Sodom, and others elsewhere. Archaeology has determined destruction by earthquake in 2350 BC, followed by a destruction by fire in circa 1700 BC.

"Paleoethnobotanists found in Bab'edh-Dhra [Sodom] traces of wheat, barley, dates, plums, peaches, grapes, figs, pistachio nuts, almonds, olives, pine nuts, lentils, chick peas, pumpkin, flax seed, and watermelon. It was a gourmand's delight. The healthy diet manifested itself in the physique of the inhabitants: skeletal remains indicate that a height of 5'9"-6'4" was quite normal."

"The date of the destruction of Sodom and Gomorrah according to Biblical chronology was a year before the birth of Isaac, which was in 1712 B.C.E."
-- Biblical Archeology (on line), www.aish.com/ci/sam/48931527.html

Other causes have been voiced, of course. A press release of the Cambridge Conference (a SIS event), headlined the following on March 30, 1997:

"Comet Destroyed Sodom And Gomorrah"

"Sodom and Gomorrah may have been destroyed by debris from a comet, startling new archaeological and astronomical research suggests."

The article places all the destructions in 2200 BC, 150 years after the earth shock (and "day of the dead") of 2349 BC, and 250 years before the more likely date of circa 1936 BC (by my calculation, shown below). The press release was prepared by Benny Peiser, who is given to cometary causes, and who added (<http://abob.libs.uga.edu/bobk/ccc/cccmnu.html>):

"Previous explanations, like a massive earthquake or volcanic eruption, could not account for destruction over such a vast area. The meteorites would have exploded above the ground with the power of scores of nuclear bombs: one devastated a vast area of Siberia in 1908."

Peiser is here extending the explosive effects to the catastrophic ending of the Egyptian Old Kingdom, the failure of the Akkadian Empire, the demise of the Harappan civilization, and the end of the Xia Dynasty of China. Victor Clube of the Clube and Napier team who wrote the unlikely *Cosmic Serpent* (1982) joined the bandwagon and announced that (quoting the press release) "He [Benny] has calculated that the Earth passed through a cloud of debris -- the Taurid meteorite stream -- thought to have resulted from the break-up of a comet 40,000 years ago, between 2200 BC and 2000 BC." I don't know where they get these dates, always conveniently placed at one catastrophe or another.

I doubt almost all of this. But an earthquake which destroyed the five "cities of the plain" in 2350 BC is certain. A BBC story, "The Destruction of Sodom and Gomorrah" (February 17, 2011), reported an estimate of 6 on the Richter scale. That is sufficient to topple a city of mud-brick buildings. The epicenter, we know, was in Tibet. The second destruction is certain also -- the evidence is in plain sight -- but it came 400 years later, in 1936 BC. This consisted of a fire which reduced the stones and walls to a powder.

Now for a determination of the the most likely date. Adding the known starting date of 3067 BC for the earlier close passes of Mars, to the start of close passes in the 8th and 7th century BC, 806 BC, and dividing by two, results in a starting date of 1936 BC as a most likely start of a set of "contacts" by Mars at the close of the Early Bronze Age which resulted in the destruction of Sodom and Gomorrah. In an article in *Aeon*, Donald Patten writes that Talmudic source materials pinpoint the destruction to the day of Passover. [\[note 25\]](#)

The Return of Mercury

Standard Bible chronology places the destruction of Sodom and Gomorrah at one year before the birth of Isaac in 1712 BC. But this is likely to be incorrect since all of it is tied to the lifespan of Abraham, who is Jupiter, and who is badly misplaced in time for the sake of a coherent timetable which places Abraham after Noah, rather than before. I have detailed all this earlier.

We should look instead at other sources. First, it has been noted by others that the local name for the planet Mercury, which (I claim) was a constant companion to Mars, became a faddish personal name after about 2200 BC. De Grazia notes that Mercury "was assigned a period of heavy worship between 2200 and 1500 BC." He writes, in *The Disastrous Love Affair of Moon and Mars* (1984):

"M. Mandelkehr has more recently informed me of several additional authoritative sources who found Thoth [which is Mercury] active throughout the Old Kingdom of Egypt, and points out that his ibis symbol existed even before dynastic times." [\[note 26\]](#)

It should also be pointed out that, although the data is sparse, there might have been a progression of latitudes where Mars passes by Earth. I have supposed that the first set of close passes by Mars may have happened above the Earth, or at least away from Earth. Manetho, however, identifies some catastrophes in Egypt after 3067 BC, the first period of close approaches by Mars

The second contact involves the destruction of Sodom and Gomorrah. Schaeffer, on the other hand, identifies sites of destruction for this second time period at about 40 degrees latitude.

The third set of passes by Mars, to be discussed in a following chapter, happened at 35 degrees north latitude.

Last, the Bible story of Sodom and Gomorrah is not easy to read and is easy to misread. Two angels visit Lot, reads the King James bible, but the Hebrew bible calls them kings. The very fact that there are two angels makes me suspect that they represent the twin planets Mars and Mercury. Too bad that descriptions are missing, unlike for Esau and Jacob. Jacob is smooth, Esau is red and hairy. What we do have is the stated fact that the angels blinded the Sodomites before destroying their city. This might be the magical abilities of angels, but I am more inclined to understand this as a celestial explosion, an explosion not unlike the blast at Tunguska.

The birth of Esau and Jacob is also most likely the reappearance of Mars and Mercury in time for the destruction of Sodom and Gomorrah, at their birth date or a decade and a half later. Esau and Jacob are sons of Isaac, who is the son of Abraham. Estimates of the destruction of Sodom and Gomorrah in about 1700 BC are thus probably correct.

Also not to be neglected is the curious condition of Lot sitting at the gate to the city when he encounters the two angels. Although this tale of Sodom and Gomorrah is 400 years after the fall of the Absu, here again we encounter a doorway to another place. It is the doorway of the Absu. If it can be told that Samson could tear out the city gates of Gaza 700 years later, and carry them off, then certainly the tale of Lot sitting at the city gates should be allowed at the same mythological level of retelling. Bible commentators, since antiquity, have

attempted to make much of Lot sitting at the gate, assigning Lot the mayorship of Sodom, with the task of greeting all visitors. Similarly much is made of the licentiousness of the inhabitants.

It would be thought that allowances ought to be made for the fact that the orbit of the Earth was different in each of these three cases -- 3067 BC, 1936 BC, and 806 BC -- but the circular geometry has little effect on the interactions between the planetary orbits. It will change the calendar dates of the interference slightly, and it might affect how close Mars came. Only the rotation of the second nodal points of the two orbits would in each instance have brought this to a halt to be continued again 1100 years later -- excepting the last, as I will show, which ended in an accident for Mercury.

Special thanks to J Brookes for questioning the red look of Sirius.
Special thanks to J West for interpretation of Sodom and Gomorrah.

Endnotes

Note 1 --

There is a 1000-year gap between the event of 2349 BC and its retelling in 1350 BC and after. But the appearance of Hathor as the Celestial Cow had happened again in 1492 BC and 1440 BC. The name of Marduk, the chief god of the Babylonian empire, is spelled in the Akkadian language with the Sumerian glyphs "AMAR.UTU" which reads "calf of the Sun."

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Note 2 --

The reaction of the spin axis of the Earth to a torque applied off-center to the equator is discussed in Appendix B, "Celestial Mechanics" and illustrated with diagrams.

A better estimate of the travel time of the plasmoid from Venus would be based on a speed of 6 million miles per hour (9.5 million km per hr). This is detailed in the text.

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Note 3 --

I am using the translation to English by Suzanne D. Fisher from the Spanish original made by Bolio in 1930. This text, along with a later translation of the Mayan original to English made in 1933 by Ralph Roys, is discussed in the chapter "The Chilam Balam." In this instance the text by Bolio makes a little more sense of the original than the more secular interpretation by Roys.

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Note 4 --

The words "and" and "then" of the phrase "and then days of the year were introduced" are both from the same base Mayan word, and do not imply the time-order of words as in Indo-European languages, where "then" means "after" and "and" implies simultaneous. I hope this will hint at why quotations from the *Chilam Balam* are to be taken in with some caution, and why the translations are often so choppy.

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Note 5 --

Warfare weapons in Mesoamerica included spears, halberds, and dart throwers, not arrows. Only game animals were hunted with arrows. This war, however, is described as using arrows.

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Note 6 --

If the plasmoids from Venus traveled at 6 million miles per hour, Venus would have been within a distance of over 20 million miles (32 million km) from Earth in order for the arrival of the first plasmoid to have been delayed 6 hours (some of the delay involves the initial acceleration due to the potential difference away from Venus within the plasmasphere). The travel delay to Jupiter, at 6 million miles per hour would be $(4.5-1)*AU/(6000000*24) = 2.26$ days. The switch to glow mode by Jupiter would have been seen on Earth about 30 minutes later -- 2.28 days.

Although it is not at all certain how long "a day" was reckoned to be (most days during this period still started at sunset), the time delay could be counted as twice from middday to midday, plus 12 hours to midnight. At some locations the celebration of the "Day of the Dead" uses full daylight days and an evening, although in other locations it starts with a nightfall event.

The distance of 20 million miles may be an overstatement. If the eccentricities found by Lynn Rose and Raymond Vaughan for Venus and Earth for the 7th century BC, 0.15 and 0.10, can be applied to the era before 2349 BC, the difference between the perihelion of Venus and the aphelion of Earth is 17.5 million miles (28 million km) under the assumption that both orbits were 0.75 AU before 2349 BC;

$0.75 * (1-0.10) = 0.825$ AU, and

$0.75 * (1-0.15) = 0.6375$ AU, thus

$(0.825 - 0.6375) * \text{AU} = 17,437,500$ miles.

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Note 7 --

I cannot agree with the circumpolar rings, for a number of reasons. First, a circumpolar ring of dust or ionized gases would be electrically unstable. Mandelkehr assumes that these would be ice particles, following the "snowball" notion of comet composition.

Second, there is the standing problem of needing to radically change the speed and direction of material (whether meteors, asteroids, or fragmented "icy comets") coming in from outside planet Earth in order to be "captured." In all of recorded history, while millions of meteor-like objects are intercepted by the Earth each year, not a single object has ever been "captured." The Moon was not captured; it is a planet sharing Earth's orbit. It would be more correct to say that the Moon captured the Earth.

Third, Mandelkehr suggests that the rings would only have lasted some months. I have no opinion on that. What strikes me as strange, however, is his compilation of some 450 gods and their attributes, gathered from mythological sources from around the world. All of them, even sets of a half dozen from a single culture, are "associated" (to use his phrasing) with rings, circles, fires, horns, bows, mountains, and streams and serpents surrounding the Earth. I find most of this severely decontextualized from the mythologies I am familiar with, and I would suggest that it is very unlikely for 450 gods and goddesses to align themselves with the iconography of a celestial phenomenon which lasted only a few months.

Fourth, although Mandelkehr's rings are nominally circumpolar, he places them at an angle of about 70 degrees to the equator, so that they pass between Ursa Major and Ursa Minor (as seen from Earth) near the Earth's North Pole. This

conclusion was apparently reached on the basis of frequent references to Ursa Major in antiquity. But this location, between these two constellations, happens to be the location of the Earth's rotational axis if this is retrocalculated on the basis of today's conditions -- using the "precession of the polar axis" -- to 2300 BC. This condition would not define a set of rings at an angle of 70 degrees to the Earth's equator, but a set of rings at an exact circumpolar position, at right angles to the equator. This seems like an oversight.

The "rings" were seen and noted by the people of antiquity. But the rings had always been there, not circumpolar, but below the Earth's equatorial in the south sky. After 2349 BC, this was reduced to a single ring at a great distance from Earth but still below the equatorial in the sky -- which seems to have lasted to AD 400 or 600.

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Note 8 --

Alfred de Grazia made note of the ubiquity of the Pleiades in mythology in *Chaos and Creation* (1984), writing:

"Many places around the world mark the beginning of November as the Day of the Dead; it is All Saints Day; Halloween; All Souls Day; etc. The time is associated with the Pleiades for reasons not clearly understood yet. The coincidences of time, mood, ceremony, and stellar assignation is so great as to exclude independent invention except in particulars and to insist upon a common experience of explicit quality."

De Grazia follows this by some comments on the possibility of diffusion, but diffusion is negated by the existence of a "Day of the Dead" festival in Mesoamerica before the invasion of the Spanish. De Grazia could not date or place the event.

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Note 9 --

In addition to the invariant skies before 685 BC (actually, the lack of a precession of the equinoxes before 747 BC), I will develop in a later chapter that the equinox moved 15 days forward in 685 BC. Thus both equinoxes happened earlier. This is born out with data from the horizon setting angles of the Sun for Mesoamerican ceremonial centers, where 6 alignments out of 13 that were checked, point to an equivalent Gregorian calendar date of September 8th, two

days after the earlier autumnal equinox date of September 6. See the chapter "Olmec Alignments."

The Pleiades were seen above Jupiter, because they are located about 6 degrees in elevation above Jupiter (which is on the ecliptic). Even if the coma of Jupiter was as large as Plutarch suggested in AD 200, "three times the diameter of the Moon" (and thus about 1.5 degrees in diameter), this would not have obscured stars located 6 degrees above the ecliptic. By the following year the Pleiades were used as the marker to celebrate the event. Jupiter would not return to this location against the background of stars for 9 years. The period of Jupiter at 4.3 AU is $\sqrt{(4.3^3)/(5.2^3)} = 9.02$ years, compared to the current 12 years at the location of 5.2 AU. On a retrocalculated ephemeris Jupiter will not appear in the night sky on September 21, 2300 BC.

Among 13 Mesoamerican ceremonial sites I investigated there are 20 alignments using horizon locations (of a mountain or volcano) for the setting of the Pleiades. See the chapter "Olmec Alignments."

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Note 10 --

Mandelkehr notes that the Pleiades culminate on about November 1 today. They do not. Culmination happens on November 14th today.

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Note 11 --

Bernadino de Sahagún recorded his observations of Aztec culture from native sources after AD 1527 in *Historia de las cosas de Nueva España* (translated in AD 1829). The culmination of the Pleiades for Mexico City, equivalent to the ceremonial center of Teotihuacan, is as follows.

Culmination of the Pleiades -- Mexico City, 19.25 deg n latitude						
year	Julian	Gregorian	midnight culmination	--westerly setting-- azimuth	deg n of w	
original	Oct 9*	Sep 22*	76.1 deg	275.6 deg	5.6	<--
685	Oct 15	Oct 8	83.5	283.3	13.3	<--
600	Oct 16	Oct 10	83.8	284.6	13.6	
200	Oct 17	Oct 14	86.5	285.8	15.8	
100	Oct 18	Oct 16	86.2	286.7	16.7	<--

AD 100	Oct 19	Oct 18	87.3	287.1	17.1	
200	Oct 20	Oct 20	87.7	288.1	18.1	<--
400	Oct 21	Oct 22	88.1	288.7	18.7	<--
700	Oct 23	Oct 27	89.5	290.7	20.7	
1000	Oct 25	Oct 31		292.0	22.0	
1550	Oct 30	Nov 9		294.2	24.2	
2008		Nov 14		295.3	25.3	

* -- using the current location of the equinox.
Frequent alignments are marked.

-- The entry "original" can be used for all years before 685 BC, where the dates should be reduced by 15 days to reflect the earlier location of the equinox.

-- The westerly settings of the Pleiades marked "<--" appear with great frequency among the significant alignments at Olmec and Valley of Mexico ceremonial sites. In all, for the 13 sites I looked at, there were 25 alignments with the setting location of the Pleiades. More details can be found in the chapter "Olmec Alignments."

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Note 12 --

Ussher paraphrases from the New Testament as follows: *"He told them it was necessary for Christ to suffer and to rise from the dead the third day."* This is attributed by Jesus to "Moses and the prophets" and thus from very old sources. In Mark 12:26 Jesus speaks of the Books of Moses, and, speaking of God, says, "Yet it is of living men, not of dead men, that he is the God." This is in distinction to Osiris, the Egyptian God of the dead.

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Note 13 --

The front of the turtle is on the left. Hunahpu and Xbalanque appear as headdresses of two monsters or gods peering out of both ends of the turtle, not unlike the heads showing out of the two mouths of the celestial serpent bar. The face on the side (center) of the turtle names the crack as "Precious Torch Death." A footnote (48 on pg. 465) in Freidel and Schele, *Maya Cosmos*, suggests an extended name from another source of "Yellow Torch Death Skull." "Yellow" is the south directional color; the "torch" may be in reference to the "image of the first turtle" which appeared in 10,900 BC as a brilliant torch.

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Note 14 --

The *Book of the Dead* is a collection of unrelated spells which never follow the same order, and are often unique. These include the spells engraved in pyramids from Unas's time on, spells painted on coffins, and later written scrolls included with coffins.

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Note 15 --

If my estimate of the travel of Jupiter through the asteroid belt is correct, then Jupiter would have entered a separate "clump" of asteroids at about 4 AU, in about 2400 BC. After that a change in the plasma of Jupiter to dark mode could have existed for a period of 50 years, only to return to glow mode with the electric activity of Venus in 2349 BC. This would be almost coincidental, but it was held as very significant, religiously, worldwide.

From the dates recorded in the sculptures at Palenque, it could be suggested that the Moon arrived about a decade after 2349 BC, in 2337 BC.

However, the *Chilam Balam* states that Jupiter was not "weeping" when the Moon arrived. This would mean that Jupiter was located behind the Sun (on the other side of the ecliptic), so that the plasma could not be seen, or that there was no plasma outpouring.

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Note 16 --

Although I would, at first thought, tie the first appearance of the Moon to 2349 BC, it seems almost certain that it would take some time before a regular orbit was established. In fact, from some sources it seems that the Moon did not show up until a decade later. With the Earth on an elliptical orbit, and the Moon on a different orbit, it would take time before these intersected. The Maya *Chilam Balam* takes note of an Earth shock and the first sight of the Moon, but no dates are even hinted at. It might simply be part of a panoply of associated events. That includes the first note on the establishment of a calendar, "days were added."

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Note 17 --

Velikovsky originally established the 52-year interval. This interval has been confirmed by many researchers from other sources, at times as 104-year

intervals. In Mesoamerica the interval is confirmed from the "52-year celebrations" recorded at the time of the Spanish invasion, although based on Tun years of 360 days, and specifically from the apparent intervals when the "primacy" of religious centers passed from one location to another after about 1400 BC.

But the actual interval of approaches of Venus did not remain the same after 2193 BC. It became shorter by a few years. Mesoamerica celebrated the "52 years" as an interval based on a Tun year of 360 days, not solar years. This has caused considerable confusion among researchers.

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Note 18 --

Amun first appears at Thebes (in Egypt) after 1985 BC, in the Twelfth Dynasty during the Middle Kingdom. Amun appears to be a reconfiguration of Ra as the Midnight Sun, who had disappeared from view over 200 years earlier. Only after circa 1550 BC (at the beginning of the New Kingdom) does Amun become widely recognized in Egypt (as Amun-Ra). After this time he starts to assume the attributes of the older Gods. He was called, "the king of the Gods," by the Thebans.

Jupiter appears under a number of other names in Egypt at this time, which combine "hidden" with the original name for "sun," although the original "sun" designation universally referred earlier to Saturn at the North Pole. In Canaan Jupiter is known as Baal Tsaphon, the Hidden Lord. In 500 BC Herodotus claims that the Egyptian Amon is Zeus, that is, Jupiter.

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Note 19 --

With the fall of the Absu the "gate to the other world" is removed. At a later date, both Hercules (Mars) and Samson (of the Bible) in legends carry away the gates of a city.

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Note 20 --

See Book 2 of the Shu and the introduction by James Legge to *The Sacred Books of the East, Volume 3, The Shu* (1879).

Of the Books of the Xia, Legge notes:

"Of the still earlier dynasty of Hsiâ [Xia], there are only four documents, and we have no evidence that there were any more when the collection of the Shu was made in the times of Kâu. ... In the last of them a celestial phenomenon is mentioned, which has always been understood to have been an eclipse of the sun in Fang, a space of about 5 1/2 degrees from pi to sigma of Scorpio, on the first day of the last month of autumn. P. Gaubil thought he had determined by calculation that such an eclipse really took place in the fifth year of Kung Khang, B.C. 2155. Doubts, however, have been cast ... on the accuracy of his calculation."

Others have demonstrated that the eclipse could not have been seen in China. Scorpio, however, is two houses over from Capricorn, although retrograde of normal planet travel in the ecliptic, where Rockenbach places the comet of 2060 BC, "in the constellation of Capricorn, and within the space of sixty-five days it traversed three signs in the sky." This suggests a comet outside the orbit of Earth, fairly close by, and seen in retrograde motion, as would happen since Earth would be traveling at a faster orbital speed (which is meaningful only if we assume that these two events are related).

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Note 21 --

That Mercury had a substantial atmosphere can be surmised from two facts. First, that in remote antiquity, when Mercury stood between Saturn and Mars, it appeared as white, and looked much larger than Mars (which, however, was closer to Earth). In Mesoamerica it was misidentified as Venus from the perusal of ancient codexes. So in the *Popol Vuh's* recollections from the most ancient narratives (10,900 BC to 8347 BC) Mercury is called "Sovereign Plumed Serpent," a name otherwise reserved for Venus. Venus only came into existence after 4077 BC.

Second, in the earliest diagrams of the standing stones of the Neolithic Avebury monument in England, there are two interior circles of equal diameter, which most likely represent a large Mercury and much closer Mars. Since Avebury probably dates to after 3100 BC, the construction of these two smaller circles is probably schematic and from memories. This is duplicated at Stonehenge, and one other location that I am aware of (but cannot place). The small planets shown below Saturn are remembered, rather than actual. This would not have been Venus, which is twice the diameter of Mars.

The side view of Venus figurines of the late Upper Paleolithic also render two lumps offset from each other and located below Saturn -- depicted as if the figurine had large buttocks and was pregnant to boot.

The misidentification of Mercury as Venus has carried forward to the current era, where Talbott claims that the white globe between Saturn and Mars was Venus. The misidentification is partially due to the fact that Mercury simply has never been considered as part of the "Polar alignment."

Talbott claims multiple plasma streams in glow mode as impinging on "Venus" (Mercury) in a circular form, making the planet look like a petaled flower or a seashell. The form of multiple streams would be correct for a planet with a magnetosphere. The separation of the glow mode plasma stream impinging on Mercury would not be expected to separate into distinct bundles (making it look like a petaled flower) unless the planet had a magnetic field. That eliminates Venus.

What is also clear, is that Mercury should, because of its atmosphere, be practically devoid of so-called "impact craters" -- as the Earth is also -- so that in losing most of its atmosphere (at a late date) this would show. Actually, it does. The cratering of Mercury is noted by astronomers to have a look of freshness unlike the craters of the Moon or Mars. All of the cratering happened in June and July of 685 BC. This was a year after the atmospheric fire on Mercury.

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Note 22 --

James E. Strickling, in "The Tower Of Babel And The Confusion Of Tongues" in *Kronos* volume 8, number 1 (1982), suggests interference of the faculty of speech, not in creating new languages, but in causing a garbling of speech so as to make it incoherent. He sources M. A. Persinger, *ELF and VLF Electromagnetic Field Effects* (1974).

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Note 23 --

The *Enuma Elish* is completely new; it has no precedent among older Akkadian or Sumerian texts except for incorporating the Sumerian flood event.

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Note 24 --

Mandelkehr blames the movement of people to a climatic downturn, which I blame on an increase in the orbit of the Earth. Mandelkehr blames it on dust generated by a comet of the Taurid complex, something, by the way, totally overlooked by the astronomers Victor Clube and Bill Napier, in their book *The Cosmic Serpent* (1982), or in any of their later talks. I will blame the 200 year climatic downturn after 2193 BC on nanometer dust in the stratosphere.

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Note 25 --

"The 108-year Cyclicism of the Ancient Catastrophes" in *Aeon* (1990). I would expect such hard-and-fast dates because planetary orbits can be expected to remain the same. Planets do not leave their orbits. It is not as Stephen Jay Gould wrote, in *Ever since Darwin* (1977): "Mars then left its regular position and almost collided with the earth in about 700 BC." That's just nonsense.

An intruding planet would repeat an earlier appearance except to be perhaps a few hours earlier or late compared to the previous overflights. This is because the planetary orbits are first of all circular, and a path of a planet on an elliptical orbit drawn across these circles will not deviate by more than a day in crossing a current orbit from the date of crossing an earlier orbit.

Additionally, the intruding planet which crosses the path of another planet is governed by apsidal precession. All the planetary orbits are ellipses, which thus have two nodal points: one at the Sun, and the other some distance away from the Sun. This second nodal point slowly revolves around the Sun, and thus the whole shape of the orbit revolves around the Sun -- counterclockwise as seen from above the north pole of the Sun. This rotation is called apsidal precession.

The Moon's period of apsidal precession around the Earth amounts to about 19 years. The Earth's orbit takes 112,000 years to rotate around the Sun today (estimates vary). What I have already suggested is that the orbits of Mars and Mercury were extremely elliptical. Perhaps because of this, the orbits of Mars and Mercury caught up with the orbit of Earth only every 1150 years. The interference of overrunning the orbit of Earth would therefore only happen periodically.

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Note 26 --

I doubt the use of the Ibis symbol as indicating Thoth before dynastic times. Mandelkehr may have reference to the Narmer Macehead of 3050 BC which shows an Ibis above a temple structure, thought to be the temple of Buto in the delta, which, however, was under water at that time. Buto may be a reference to Saturn in the northern "sea above" with the Ibis representing Uranus seen above Saturn at an earlier time.

De Grazia lists as his sources for Mercury the following: E. A. Budge *Osiris, The Egyptian Religion of Resurrection (Book of the Dead)* (1895, 1961); J. Bonwick *Egyptian Belief and Modern Thought* (1878, 1956), Theosophical literature, reviewed, however, as "tripe"; R.T.R. Clark: *Myth & Symbol in Ancient Egypt* (1959, 1991); D.B. Redford "The Sun-Disc in Akneton's Program: Its Worship & Antecedents I", *Journal of the American Research Center in Egypt* (1976); and *Cambridge Ancient History*, Third Edition, Vol. 1, Part 2 "Early History of the Middle East."

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Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.017+ and deg=57.2+; other functions are shown as f(); tan()=s()/c()
units: million == 1,000,000; billion == 1,000,000,000;
AU == 93,000,000 miles.



Chapter 22: The Exodus of Moses.

\$Revision: 42.6 \$ (moses.php)

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This chapter concentrates on the period surrounding the events of 1492 BC, including an electric contact by Venus, the Exodus of Moses, the fall of the Middle Kingdom of Egypt, and changes experienced worldwide.

The Terror of Venus

"In the Bronze Age," reads a book on the prehistory of Crete, "Crete was the first center of naval power, where people lived in peace and plenty in unwalled cities. This lasted for over 1500 years."

"About 1400 BC a great catastrophe befell the island, a catastrophe of which we have no clear record in history, but one which is marked by destroyed and abandoned cities and villages, and from which the civilization as a whole never recovered."

-- R. W. Hutchinson, *Prehistoric Crete* (1962)

The same author notes in the next paragraph, however, that, after an interval of 400 years, "... a new life and culture arose in Crete. Even this revival of culture in Crete, however, did not survive the seventh century BC, and a new decline set in... ." [\[note 1\]](#)

The story of the sudden decline of civilization is repeated over and over, all following shortly after three dates -- 2400 BC, 1500 BC and 800 BC -- for one locality after another: in Greece, in the Middle East, in India, in China, in Mesoamerica, and in South America. This is especially true for the 8th and 7th century BC when some 300 cities in the Middle East were destroyed by

earthquakes and fire. These incidents were better remembered. I will return to the 8th and 7th century BC later. The current topic is the era of 1500 to 1400 BC, when vast migrations of people are noted, apparently caused by natural disasters and worldwide changes in climate. [\[note 2\]](#)

We are now dealing with events not as remote as the flood of 3147 or the shock of 2349 BC. There are more records for this later period (although still pitifully few). The incident of circa 1500 BC was a worldwide catastrophe, in some ways larger in scope than the early flood events, for the Earth was moved considerably further from the Sun. Farmers and herders were affected; some civilizations never recovered. The later and much more frequent disruptions of the eighth and seventh century will be minor events in comparison. [\[note 3\]](#)

Whole nations of people migrated following 1500 BC. Others disappeared. It may be conjectured that Mesoamerica developed its bloodbath of controls over the spiritual world at this time. India disappeared into a Dark Age which did not lighten for 700 years. China, on the other hand, started its civilization in earnest. There were probably as many clever solutions to the catastrophes as there were desperate failures. Those who coped, those who found the imagination to handle unpredictable disasters, survived.

It was in 1492 BC that the dragon Venus "attacked" Earth. This is the planet which had been "expelled from Jupiter's skull" at the time of the confrontation with Saturn (3147 BC), had swung into an orbit nearly identical with Earth's orbit of that time. Venus would blaze through the sky for 2400 years with a coma and a 30 million mile (48 million km) long tail. Venus is the only deity which is almost universally recognized as having been "born" during historic times. The birth of Venus was seen by humans in 4077 BC (when Saturn went nova), or alternately seen as the separation from Saturn and Jupiter after 3147 BC.

I should point out also that the electric contact with Venus was the core of Velikovsky's book *Worlds in Collision*, where it is supposed that Venus traveled on a path that brought it close to Earth -- "nearly collided." This of course is nonsense, since planets do not alter their orbits to nearly collide with one another. If this had happened, we would not be here to tell the tale of Venus. But it is obvious that Mars after 800 BC did come very close, as it had at two earlier times, with an unbelievable amount of damage done to Earth by such a tiny planet. If this had been Venus, Earth would have been totally destroyed. The contact, the "near collision" with Venus happened at a separation distance, I

estimate, of some 10,000,000 miles to 20,000,000 miles (16,000,000 km to 32,000,000 km).

In Mesoamerica, Venus appears as the feathered serpent Quetzalcoatl. In Greece, she was called Athena, sprung fully armed from the skull of Zeus (so say the Greeks). In Upper Egypt, she was Isis and in the south she was Hathor the celestial cow. In Lower Egypt and Libya, she was identified with the warrior Goddess Neith, who persisted to classical Greek times from 10,900 BC. Neith was held as the generatrix of mankind and the mother of the Gods. The Egyptian queens and mothers of the first dozen Horus-named pharaohs after 3150 BC took *Neith* as their name. Plato says that Neith is Athena. That is not true, but it will do. [\[note 4\]](#)

Venus lined up between the Sun and Earth at great intervals. As retold in the previous three chapters, starting in 2349 BC, Venus assumed the disastrous position between the Earth and the Sun four times, ending with the last electric contact of 2193 BC. Most likely the orbits of both Earth and Venus were eccentric, and Venus may have crossed over the orbit of Earth. But this last would not *per se* have resulted in interactions. And as I mentioned in the previous chapter, when electric interactions did happen, the distance between Venus and Earth was probably on the order of 17- to 20,000,000 miles (27- to 32,000,000 km) in 2349 BC and 10- to 12,000,000 miles (16- to 19,000,000 km) in 1492 BC. The destruction of the Earth was electric, not gravitational. [\[note 5\]](#)

Since 2193 BC (the second "contact" in this era), and for 700 years afterward, Venus and Earth were never again in line with the Sun at the same time. Nothing more spectacular happened than the displays of the coma and tail of Venus as the planet ranged across the skies from the east, approached and retreated over the span of the year, and periodically crossed Earth's path to move deep into the night skies of the south. Venus was discharging its birth legacy of surplus charge. It would continue to do so perhaps until sometime before the time of Aristotle who commented on the status of Venus as a planet.

In 1492 BC Venus moved past the orbit of Earth on the Sun-side of Earth, and the plasmaspheres touched. Both planets suddenly experienced a massive electric repulsive impulse -- affecting the orbits of both planets. This veered the Earth from its orbit to a path of greater radius around the Sun, and moved Venus also. Although the year became longer for Earth, it seems that Venus perhaps only changed the eccentricity of its orbit. [\[note 6\]](#)

The date of 1492 BC is by Velikovsky as minus 1492. A number of late medieval chronographers use 1495 BC instead. Johannes Hevelius (in AD 1668) offers 1495 BC, Abraham Rockenbach (AD 1602) uses 1493 BC. James Ussher (AD 1650) uses 1491 BC. Sethus Calvisius (ca AD 1600) uses 1495 BC. Josephus (ca AD 80) inadvertently also uses 1491 BC (3147 BC less 1656), but identifies it as the year of the flood of Noah (1656 years after creation, where I have used the true date of creation in the calculation). The tomb of Senmut, Vizier to Queen Hatshepsut of Egypt, was started in circa 1500 BC, in Thebes. The construction was halted in 1493 BC, the astronomical year -1492, and never completed. (But dated to circa 940 BC in Velikovsky's revised chronology.)

... a sequence of events

A sequence of events can be established. Venus passed on the day side of Earth, between Earth and the Sun. There is good evidence (from Olmec Mesoamerica) that a plasmasphere contact (an Earth shock) happened on the Gregorian equivalent calendar date of April 19th, 1492 BC. This date is developed in the chapter "Olmec Alignments." The book of Exodus says it happened on the 14th day of the first month of spring, held to be April.

There is evidence brought forward by other researchers that the Southeast Pacific experienced a gigantic impact between 1500 and 1400 BC, but of course the information has been attributed to a meteor impact. There was no gigantic "meteor impact" in the South Pacific, even though tsunami waves traveled (it is presumed) as far as the coasts of China and New Zealand. It was a compressive electric shock from Venus. Additionally, the most likely location of the compressive impact of 1492 BC would be just south of the equator. The impact would also have been four times as massive as the repulsive impact of 2349 BC which had shoved over the Himalayas, but the lever arm of the applied torque was much shorter. [\[note 7\]](#)

Velikovsky wrote the following, correctly associated with the 1492 BC event:

"In the manuscripts of Avila and Molina, who collected the traditions of the Indians of the New World, it is related that the sun did not appear for five days, a cosmic collision of stars preceded the cataclysm; people and animals tried to escape to mountain caves."

He quotes, for this, Brasseur de Bourbourg from *Sources de l'histoire de Mexique* (1860) as follows:

"Scarcely had they reached there, when the sea, breaking out of bounds following a terrifying shock, began the rise on the Pacific coast. But as the sea rose, filling the valleys and the plains around, the mountain of Ancasmarca rose too, like a ship on the waves. During the five days that this cataclysm lasted, the sun did not show its face and the earth remained in darkness."

-- *Worlds in Collision*, p.76

The use of this source is misleading, since the quoted paragraph is not about Mexico, despite the book's title. Francisco de Avila and Christoval de Molina documented Peru and the Inca. The mountains of Cerro Ancasmarca are in Peru at 11.5 degrees south latitude, and inland near Cusco.

The Andes might have lifted. Some geological researchers think the Andes were raised suddenly by as much as 10,000 feet (3300 meters), although 3000 feet (1000 meters) would be more realistic. Charles Darwin, writing in 1835 during his voyage on the Beagle, noted:

"... the Cordillera [the mountain chain of the Andes] itself is absolutely modern as compared with many of the fossiliferous strata of Europe and America."

It is quite possible that the Andes in fact moved up quickly, within a day or week or a year. At one time the marginal agricultural conditions surrounding Lake Titicaca, at an altitude of 12,500 feet (4000 meters), which is above the tree line, in the Alto Plano of Central Peru adjacent to Bolivia, were used to justify this. It was suggested that the monumental constructions of Tiahuanaco, south of the lake, dated to much earlier times. But the best archaeological evidence of changes in the region is that it was not settled until after 1400 BC. Construction commenced in about 800 BC. [\[note 8\]](#)

The impact was near the equator (because this was just after the vernal equinox), and the force would have passed through the Earth below its center. In response, the southern hemisphere tilted away from the Sun, and the Earth would have been subjected to an immediate gyroscopic reaction. A look at a globe will reveal that most of the Earth was spared from utter destruction because the 1500 mile (2400 km) diameter compressive Earth shock was experienced in the Pacific.

The shock, writes Velikovsky, was felt at midnight in Egypt. A location in the Pacific west of South America would have faced the Sun and is, in fact, 180 degrees removed from Egypt -- noon in the Central Pacific at 150 degrees west longitude, somewhat east of Hawaii but south of the equator. However, going by the complete lack of islands in the region of the Eastern Pacific north of Easter Island, a location of 120 degrees west longitude might be more appropriate

The impulse fell below the center of the Earth would first have tilted the upper half of the Earth's axis of rotation toward the Sun. Asia and Europe initially tilted in this direction, bringing India, Arabia, and the lower Eastern Mediterranean in direct line with Venus -- as the Earth rotated. This condition would have held for maybe a day, for the simultaneous gyroscopic reaction torque would move the spin axis to the forward direction of the Earth's travel on its orbit (the celestial east direction). Since the axis of the Earth would initially have pointed mostly to the rear portion of the Earth's orbit (it being early spring), the effect would have lasted some time. (See Appendix B, "The Celestial Mechanics" for the effect of a gyroscopic reaction torque.)

As the Earth's axis tilted and moved through a clockwise loop, the path of the subsequent electric arc would have angled up past the equator, past Australia, but might have crossed land in Southeast Asia, India, Arabia, and the Eastern Mediterranean. The arc traveled west, whereas the cloud of suspended water vapor over the Pacific, moving much slower, moved east, as all weather does.

At the point where the arc reached the Eastern Mediterranean, the axis would have completed about half of its sweep, and would have started to tilt away from the Sun again and angle toward the rear portion of the Earth's orbit (the celestial west direction). This would have caused the path of the arc from Venus to now angle back to the equator, so that North Africa might have been on the path, the Atlantic would have been crossed, and landfall would be made in Central America or upper South America. The water in the atmosphere could have caused the five days of darkness. This path and the atmospheric conditions might explain the difference between the date of the start on the 14th given by the Bible and the date of completion on the 17th of the equivalent same month used in Mesoamerica.

I cannot be certain of this path. And certainly the effects would have been felt away from this path also. The initial shock would have been felt worldwide. With the displacement of the air with the impact, the atmosphere would have reacted with hurricane force winds in the direction away from the impact

location in the Pacific. It is also uncertain how long the electric repulsive force would have lasted -- to be replaced by an attractive force -- perhaps only minutes. It was not in effect by the time Southern Asia faced Venus.

Whereas in 2349 BC the year had lengthened by 20 days, and in 2193 BC the year had lengthened by 13 days, in 1492 BC the year lengthened by 87 days. This was recognized in remote antiquity. Ussher paraphrases the following, from sources I cannot place:

"... as the Israelites continued to die in the wilderness, Moses composed the 90th Psalm, 'Lord thou hast been our refuge.' He also showed that the normal age of men was reduced to 70 or 80 years. Therefore, the age of man was shortened to a third of what it was before 1490 BC."

This would be correct if we read this as "by a third" rather than "to a third," for an increase of 87 days represents a change of 30 percent in the length of the year (of 273 days). Ussher probably meant to make a comparison to the ages of Abraham, Isaac, Jacob, and Joseph which ranged from 100 to 200 years.

Venus had been positioned closer to Earth this time than it had in 2349 BC, on an orbit estimated to be 9,000,000 to 10,000,000 miles away from Earth. It would have taken some time for Venus to overtake and pass Earth on its parallel orbit. Actually, the movement past each other would be determined by the width of the two plasmaspheres: certainly 320,000 miles (515,000 km) (40 Earth diameters, 20 to 30 diameters today) for Earth, and a lesser width for Venus (since it has no magnetosphere), which would determine how long the electric arc might have lasted. At most it would have taken about six days for Venus and Earth to pass each other. [\[note 9\]](#)

This would account for the fact that an electric arc, initiated in the South Pacific, managed to travel across the Earth at least as far west as the Eastern Mediterranean -- over half the circumference of the Earth, representing a half day. It seems to have traveled through lower Asia and India or along the Indian Ocean, hit land in Arabia, continued through the Sinai and lower Egypt, and probably continued through the Mediterranean along the coast of North Africa, to cross the Atlantic and approach the Americas. Arabia's deserts are still marked with large areas of scorched stones.

The initial repulsive electric impact in the Pacific would have reversed itself (as an opposite charge was induced), and began to lift vast amounts of ocean water into the atmosphere and stratosphere -- which would have spread throughout all

of the world within a few days or a week. The levitation of seawater would have ceased even before the electric arc was established. Thus, although I estimate that Venus and Earth were electrically visible to each other for a span of 6 days, the arcing might have dissipated at the water-soaked upper atmosphere after a single rotation of Earth. [\[note 10\]](#)

After the initial shock, Venus was seen later that day in the Middle East as a gigantic red glowing globe. We have a number of recollections and descriptions of this. The water vapor from the Pacific, traveling toward the east, had not reached the Middle East yet. If the red globe were the size of the Moon, it would have been twice as far away as the Moon is today, or about a half million miles (805 thousand km). But it is more likely that Venus had a much more extensive coma, and would look huge even at far distances. We have to assume that it looked red because of local dust in the air, from arcing across India and Arabia. The globe in the sky was memorialized as the attacking demon or the God Typhon.

Because Venus must have carried a much lesser coulomb charge since the contact of 2349 BC, there were no disconnected plasmoids released. Instead there apparently was a continuous arc from Venus striking Earth, as recorded by Moses in the book of Exodus and recalled later by the Greeks as the legend of Typhon.

The major effect of the contact with Venus, in addition to the change in the Earth's orbit, was the addition of a massive amount of dust (from forest fires) to the stratosphere, and water vapor to the atmosphere (the result of the initial compressive contact to the waters of the Pacific and the subsequent attractive electric force).

The Earth dimmed, and agriculture failed. A people "walked in darkness" for 40 years (Bible) and "a generation grew up in darkness" (Mesoamerica). The Earth had been subjected to electric arcing earlier (in 2193 BC) with a corresponding 200-year downturn in climate. The electric exchange with Venus in 1492 BC was largely moderated by the amount of water vapor in the atmosphere. The rain clouds that hung above were darkened by the nanometer dust in the stratosphere. The gloom lasted 40 years.

... some details

Mesoamerican retellings mention the total destruction of buildings and villages. The coastal regions of South America must have become largely depopulated. People at latitudes further north from the strike point and the path of the arc were not directly affected, except for earthquakes, tsunamic ocean tides, and the aftermath of a "fallen sky" -- the result of massive amounts of oceanic waters vaporized and forced into the atmosphere, and held there by the failure of the Sun to break through the dust of the stratosphere. The clouds never warmed up to release their moisture and were perhaps also kept suspended by the increased electric charge of the Earth. Forty years in the desert, however, or "a generation," is a lot less than the 200 years of climatic downturn experienced in 2193 BC, or the 1500 years of shadow of 10,500 BC.

Velikovsky had suggested that the two planets may have closed to as little as 6 diameters in distance from each other (48,000 miles, 77,000 km) and may have circled each other. I seriously doubt both of these. This has become part of the "collision" scenario of Velikovsky for which he has been faulted. It is, in fact, one of the few valid objections stemming from a consideration of the physics involved.

*"Because of the proximity of the earth, the comet [Venus] left its own orbit and for a while followed the orbit of Earth."
-- Worlds in Collision*

That is just nonsense. A planet does not "leave its orbit for a while." At the time of Velikovsky's writing this was needed, despite the fact that a close approach of a planet as large as Venus was known to be completely untenable, for Velikovsky needed to account for a number of things which could only be achieved through gravitational interactions. One of these is the oceans and waters which stood up to the sky. Another is the vast destruction encountered by Earth and its people during this period -- to the point where some who recorded the event claimed that almost all humanity died.

Velikovsky has documented the interaction between Earth and Venus for this period in detail from Indian, Babylonian, Egyptian, Mesoamerican, and Biblical sources (including Bible commentaries), as well as from Roman and Greek recollections. There are tales of 6 or 10 days of darkness (Middle East) and days when the sun never set (China). The world was swept by fierce hurricanes and later versions of *The Epic of Gilgamesh* incorporate the hurricanes into its description of the earlier flood. Recollections that "ocean waters stood up and

reached to the skies" are found in the Middle East, India, and in Mesoamerica. [\[note 11\]](#)

Considering the fact that humans only developed subjective consciousness during or after the time of Moses, we would expect there to have been a lack of descriptive memories of environmental catastrophes before this time. However, memories of stupendous doings of the Gods, which would be retold and replayed as dramas, would be remembered. And at this time, ca 1500 BC, we have already experienced 500 years of efforts at written histories -- at least as repeatedly retold "legends."

Even as late as the seventh century BC, these histories include very little of natural disasters. Exceptions are the writings of the prophets of Israel and the Chaldean astrological records. The Chinese pay almost no attention to the heavens. All this is not different from our lack of attention to natural events today. [\[note 12\]](#)

The electric arc swept across the Middle East. This was a Birkeland stream of plasma in arc mode seen as if at close quarters, identified as a monstrous twisted snake, with multiple heads in the upper sky -- the monster Typhon of legend. The Greeks insisted that the planet god Zeus came to save the world from this creature, mistaking the sphere of Venus seen above the dragon for Zeus (Jupiter). [\[note 13\]](#)

The battles of Marduk and the dragon Tiamat, the revenge of Horus on Seth, the battle of Krishna and the serpent, all describe similar details, although likely referring to 2349 BC rather than 1492 BC. Some people in antiquity correctly identified the large red globe at the apex of Typhon's multiple heads as Venus, and understood it to be the cause of the devastation. Some people called it a comet. To the Israelites leaving Egypt, the column of lightning was the arm of their God Yahweh, who spoke to them from the overhead globe. [\[note 14\]](#)

Velikovsky identifies a series of events as the ten plagues visited on Egypt by the God of the Israelites. The Egyptian Ipuwer Papyrus echoes the plagues of Exodus one for one. Velikovsky proposes causes for many of the plagues based on presumptions about the comet tail of Venus, which (he claims) would have swept into the Earth's path before the arrival of Venus. The "tail" of a comet or planet faces away from the Sun. The main tail is an extension of the planet's plasmasphere and is shaped by the shadow of the Sun's electric field in the direction away from the Sun.

There is a second tail of particulate matter, which curves, but it curves in a direction lagging the orbital movement of the planet Venus. This tail spreads out as the ionized particles repel each other. There is thus no tail which sweeps into the path of Earth prior to an electric field contact. There may, however, have been earlier contacts between the double layer of the plasmasphere tube of Venus and the Earth's plasmasphere.

Thus it is possible that before 1492 BC the tail of Venus had been experienced perhaps by having the edges of the plasmaspheres of Earth and Venus brush against each other, causing an interaction of the outer layers without establishing a clear sight-line between the two planets. Thus, as Venus was passing Earth on the Sun side the tail could have reached Earth from perhaps as far as 30,000,000 miles (48,000,000 km) away. The effects of this probably were noticed during a passage of Venus two years earlier. An electric interaction of the globes would only occur when the plasmaspheres of the two planets actually lined up. [\[note 15\]](#)

Velikovsky proposed that Venus approached Earth from the Sun side, and thus Earth at first intercepted the plasma tail of Venus. Actually, Venus likely caught up with Earth, with Venus moving faster than Earth because Venus was on an inner orbit. The edges of the plasma tail would certainly have "touched" the Earth's plasmasphere and transferred electric charges and gas ions constituting the boundary layers of the plasmaspheres. This might have resulted in changes in the weather during these earlier near alignments. Storms could have been a fact, and, as a result, Egypt would have been blanketed with dust, not from Venus, but from the Sahara.

I also disagree with Velikovsky's proposed makeup of the tail of Venus. He assumes a composition of fine ferrous dust at the far end of the tail, larger particles closer in toward Venus, and then hot cinders and rocks in the tail portion closest to Venus -- as if Venus was a tossed firebrand. Although I will (reluctantly) concede the presence of dust (ionized silicon compounds) or hydrogen and methane gases (which he identifies with petroleum), the tail of Venus was a plasma -- composed of electrons, protons, and ionized atoms. The outer edges of Venus's plasmasphere tail would have had a density approaching the classical notion of outer space. The tail of matter was composed of ionized particles.

It is thus not likely that the plasma tail would be composed of a hail of hot stones, despite the fact that the surface of Venus was at that time still

incandescent. It is more likely that the grit and hot rocks were generated from the Earth's surface where the arc from Venus traveled over land surfaces and explosively launched dust, cinders, and rocks into the atmosphere. [\[note 16\]](#)

One would at first suggest that the electrical proximity of a large planet would have also severely stressed the Earth's crust, and there are many references to this sort of phenomena in antiquity -- mountains moved and the ground swelled underfoot the fleeing Israelites, who were in the process of leaving Egypt when this occurred. (The exodus will be discussed below.) Both the Bible and the records from the Americas speak of the ground opening up and of caves closing on fleeing humans. Lava flows and volcanoes burst forth. The Arabian Peninsula lifted and folded. Indian sources speak of mountaintops being lifted up, cast into the air, and ground into dust. The land west of the Zagros mountains rose, and the Euphrates river moved a hundred miles west. South American sources speak of the rising ocean tide and the simultaneous rise of the ground as if it floated on the waters. There is no written history for the period of 1500 to 1400 BC during the Shang dynasty in China. In 1400 BC, in response to some calamity, the capital had been moved and the Shang is renamed as the Yin for its new location.

The anecdotes which I have collected in the above paragraph from other sources are obviously primarily imagined to be caused by the gravitational forces of a large nearby planet, and assumed to be operating on the Earth's crust. Nearly nothing has been developed (or imagined) of the effects of the repulsive electric impulse forces operating in compressing rather than lifting the crust, followed by an attractive force, both from a great distance, and both of which far exceeded any forces which gravity could have produced at much closer distances (by a factor of billions on billions). This last would have operated on the facing crust, and cannot, like gravity, be assigned to operate on the bulk of the Earth. See Appendix B, "The Celestial Mechanics," which discusses the repulsive (and attractive) electric forces as the agent of destruction, and as the primary mechanism behind changes in orbits.

Another element of the destruction was the resistance of the Earth's crust to the compressive initial shock -- but not to the gyroscopic reaction, which would have been a smooth transition. Earthquakes, in fact, probably lasted for decades. Hurricane winds were probably due both to the traveling arc and the compressive shock, not to the gyroscopic motion of the Earth. I also feel that many of the geological disturbances attributed to this era might more properly be located in the span of time of 800 to 685 BC.

Last, let me assure the reader that an electric arc from 10,000,000 miles (16,000,000 km) is very possible, even if this seems like an absolutely impossible distance. First, the double layers of plasmaspheres are conductors in that they are composed of disassociated ions. It is like an electric cable.

Secondly, the interior of a plasmasphere and tail of a planet is consistently at about the same electric potential, so that it also is an effective conductor of electricity. The arc did not travel through empty space. Travel over this short distance might become easier to believe when we reach 685 BC, where we will meet up with a disconnected arc from Saturn to the Sun, traveling an absolutely unbelievable distance of 480,000,000 miles (773,000,000 km).

Yet Velikovsky, despite his initial claims for the electrical nature of the planets of the Solar System, was not ready to carry through with this concept. The best he could do was to produce a spark between Venus and Earth -- at which point the waters of the Red Sea, which had opened up a passage for the Israelites by standing up as a tide reaching to Venus (and imaginatively assigned to gravitational effects), fell again. The Israelites placed the climaxing event of their escape from Egypt on the night starting the 14th day of Aviv, in 1492 BC. Their day is counted from sunset. The "climaxing event" actually is not the opening of the "Red Sea" but the earlier earth shock of worldwide proportions. The opening of the "red sea" is clearly a descriptive recollection from 2349 BC, and may have had nothing to do with the ocean which today we call the Red Sea.

The 14th day of Aviv, where Aviv is the first month of the year after the spring equinox (Exodus 12:18), is marked with a sunset alignment of April 19 by the Olmec San Lorenzo site built around 1450 BC (see the chapter "Olmec Alignments"), and repeated at almost every later site.

The Earth was shrouded in low clouds for years, recalled in Biblical and Egyptian sources, and even more vividly in Mesoamerica, where sources claim that "the people grew up in darkness." However, the pillar of "cloud by day" and "fire by night" which the Israelites followed through 40 years of desert wandering was (possibly) from the electrostatic induction of the Ark of the Covenant -- not from a continued arc from Venus. It is even more likely that the pillar represents a plasma plume above the north magnetic pole of the Earth, the result of a relocation of Earth much further away from the Sun. I'll discuss this further below. [\[note 17\]](#)

The crust groaned endlessly. The Egyptian scribe Ipuwer writes, "Oh that the earth would cease from noise, and tumult be no more." As Moses met God on

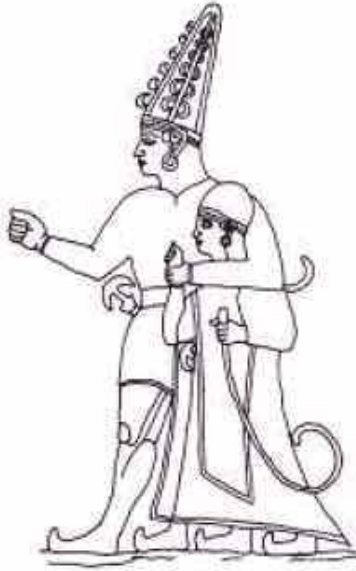
Mount Sinai, the Earth groaned, "Lo tirzah, lo tin'af, lo tignof..." -- the Ten Commandments, brief, to the point, "Kill not, Steal not..." [\[note 18\]](#)

After the electric contact with Earth, the path of Venus was bent toward the Sun (or remained nearly the same, as suggested above) and the path of Earth was angled away. Velikovsky suggests that Venus reapproached Earth after six days and exchanged yet another traveling plasma discharge. Still attracted toward each other (presumably gravitationally), Venus, now hidden by the fallen skies on Earth, proceeded to yet another encounter six weeks later on the day of the Law Giving at Mount Sinai, says Velikovsky. The planets subsequently did not come close enough in their travels to cause any further interactions for the next 50 years. The first return of Venus after six days is quite likely, although it was not a return, it was probably just a contact with the trailing edge of the plasmasphere of Venus. The second return, after six weeks, is unlikely. [\[note 19\]](#)

Soon after the electric contact with Venus, with the Earth now much further away from the Sun, northern climates changed for the worse. The climate became cold. Grapes no longer grew in Scandinavia. The cloud cover affected agricultural production everywhere. During the first years, massive rainstorms stripped the Southern Balkans of soil and trees. Then a drought set in. The water table dropped precipitously and rivers dried up. Drought is a sure sign of a pervasive cloud cover without rain. The early European Bronze Age north of the Alps came to an end.

Tribes and peoples migrated to find better places to live. The Middle Kingdom of Egypt came to an end (probably soon after 1492 BC) when the Hyksos (the Amalekites met by the Israelites during their exodus) invaded from Arabia and held the delta for two hundred years or more, disrupting the political unity of Lower Egypt and ending the far-flung trade on which Egypt had depended during the period of the Middle Kingdom. The Hyksos established two dynasties in the delta. They established fortifications in Southern Palestine, as at Avaris, from where they regularly raided Upper Egypt and the Levant as far north as Syria. Others have suggested that it was the Mitanni or Philistines who controlled the Hyksos. [\[note 20\]](#)

Under the Hyksos, a new calendar was introduced in Egypt. In Mesoamerica, the Olmec culture initiated a 360-day calendar by setting up 18 months of 20 days. It was, in fact, the first rational calendar, but was used simultaneously with the older 260-day calendar of 13 periods of 20 days. Moses was given a new calendar by Yahweh. The orbit of Earth had changed.



[Image: the god Sharruma guiding his steward king Tudhaliya. The king has a kalmush in his left hand, the sign of sovereignty. Sharruma's pointed cap is adorned with god-ideograms. -- Rock carving at Yazilikaya, Turkey. Hittite, 1250 BC. After uned.es.]

The Messenger God

When Jupiter lost its coma in 2150 BC, the last of the older Gods had been removed from the vicinity of Earth. Only the dragon -- Venus or Quetzalcoatl -- still followed an eccentric path through the skies, closing in on Earth's orbit at 50-year intervals. And Mercury (as well as Mars) was still seen scurrying back and forth across the skies on errands for the distant Gods and in the administration of humans.

The planet Mercury was now the most active remaining celestial body. Mercury had a coma and tail which lit up; Mars did not. Mercury becomes identified as the emissary and messenger of the older Gods and was named Thoth (Egypt), Enki (Mesopotamia), Hermes (Greece, initially known as Apollo), and Mercury (Roman, but at a much later date). He became the special caretaker of humans, providing all the gifts of civilization and controlling the fate of humanity. In Egypt, Mesopotamia, and Greece, he is the God with the arcane knowledge of writing, music, mathematics, and magic. Thoth, and the others, represented those faculties which seemed unnatural to humans -- those which were not held by the Ka of the Egyptians. These faculties included the knowledge of spells and

magic, and were responsible for the expansive application of writing and measurement after about 2100 BC.

Eventually the messenger God would be woven into earlier tales and even held as a creator God. The details of his assigned tasks, like the names of the messenger, vary widely, but they have a similar characteristic everywhere. They do not have power; they have cunning. [\[note 21\]](#)

After the previous electric contact with Venus, in 2193 BC, the static electricity of the atmosphere had probably steadily decreased, as it also had after 3100 BC. But the remaining atmospheric static electricity was still likely to show up just about anywhere: on mountains, pyramids, the tops of columns, and the horns of cattle -- as if it were delivering messages from the far-away Gods.

"Everything was in flames, the sky with lightning, the water with luminous particles, and even the very masts were painted with a blue flame."

-- Charles Darwin, writing about the voyage on the Beagle, circa 1856.

The blue flame experienced by Darwin was Saint Elmo's fire, a plasma exchange at glow level, which I have made note of in a previous chapter. It has been experienced since antiquity, especially by sailors, but today it occurs less frequently, and only under circumstances of impending electric storms at sea. The glow will show on ship masts, church steeples, and airplane wings. Saint Elmo's fire is a plasma flow between the crust of the Earth and the ionosphere. The plasma stream, which is normally at a low density and in "dark mode," will be concentrated to higher densities and "glow mode" by pointed objects which are electric conductors. The result is as eerie as it is spectacular. [\[note 22\]](#)

Shortly before 1500 BC, the atmospheric electric charge, which had declined for 700 years since the last visit by Venus, increased again as the plasmasphere tail of Venus swept past the Earth and possibly touched at intervals a few years apart. The Egyptian magicians noticed. Moses noticed. You could tell from the environment. Something was coming. [\[note 23\]](#)

Moses and Yahweh

In the Sinai desert, Moses sees God in a flaming bush. Specifically, a thorn bush. This is important, for he notes how Saint Elmo's fire issues from the thorns and how it assembles itself into a dense core where the thorns point together. He will construct the Ark of the Covenant in a similar form -- two gilded angels on a

box with their wing tips covering the Ark and nearly touching, which will be the seat for Yahweh. Yahweh is one of the gods associated with the play of electricity, but he is no messenger. He is a God in his own right. "Who are you?" asks Moses, addressing the flaming bush. "I am who am," Yahweh answers. Another reading of the Bible text is, "I am who comes."

Plutarch says Athena (Venus) means, "I come from myself." Cicero states Venus is so named because, "she comes to all things." The *Vulgate Bible* translates "Yahweh" as "He who is," although "He who casts down" might be a better translation. The equivalence of the names is not a coincidence, for it was the approach of Venus which generated the electric conditions resulting in the display of Yahweh. [\[note 24\]](#)

Alfred de Grazia adds "God fights," as a variation on "Downcaster" for the name of Yahweh. The Israelites were, in fact, the most ferociously belligerent nation to enter the Middle East before the Assyrians rose to power a third time. They were an army forged in the Sinai Peninsula under the tyranny of Moses and his God Yahweh. They took the Ark of the Covenant into battle as a secret weapon, terrifying their enemies. The slaughter was enormous. Many centuries later, the Philistines capture the Ark. After moving it to three different cities, they beg the Israelites to take it back. It was uncontrollable and those who approached it became ill.

The *Book of Exodus*, as an account of these events, is not to be dismissed and needs to be read with an open mind. Take Alfred de Grazia as a guide.

"There myth is cozy with history. And the combination has been fiercely, obsessively retained, as if a purely historical recollection would be unbearably painful. Although the second of the five Books of Moses, the Exodus, is the best account that we have of that year, its most ancient lines were written down under stressful circumstances; to these lines, perhaps of Moses himself, a full oral tradition was added in the course of several centuries. The materials were sometimes lost; they were copied, rewritten, amended, translated and retranslated, time and time again."

-- Alfred de Grazia

I am indebted to Alfred de Grazia's *God's Fire* (1983) for what I will summarize in a few paragraphs. First off, to dispel a few inaccuracies: [\[note 25\]](#)

- Moses is a member of the court, probably the pharaoh's adopted brother. This is supported by the story of his birth and upbringing. Pharaohic succession was matriarchal, including by adoption. Nothing else explains the ready access of Moses to the court. As a member of the elite, he was fully Egyptian and, although nursed by his biological mother, he was raised as the adopted son of an Egyptian princess. [\[note 26\]](#)
- Moses spent a decade in exile in the Sinai peninsula (he had killed a member of the court), married into a local Midianite tribe of herdsman, and tended flocks. As an exile, he received insights into other gods (the people outside Egypt had, of course, different Gods) and learned from the smiths of the Egyptian copper mines of the Sinai. As a court member, he read, he wrote, he knew materials, and he performed magic.
- The Jews were not slaves, except in the sense that all citizens of a nation were slaves of the Gods. When they leave Egypt, they carry swords and other arms. Within the first month in Sinai, they spend a day fighting a rear-guard action against the Amalekites (Hyksos). Arms are not the hallmark of slaves.
- What Moses and his spokesperson, Aaron, sought of the Pharaoh was an "exit permit." The population of Israelites were an economic force and would have been pursued if they had just decided to leave Egypt *en masse* and without permission. Of course, at the last moment, the Pharaoh changes his mind and did pursue them.
- The exodus was well planned and organized. The Israelites left with the body of Joseph, and with their herds and ox-drawn carts and plenty of materials: provisions, tents, metals, forges, and lumber. They left with a mixed multitude of other squatter nationals and disaffected Egyptians. And they left with the Levites -- a cadre of Hebrew-Egyptian scribes, bureaucrats, and administrators, who would be assigned as the priests of Yahweh and the camp police.
- The passage through the standing waters was not through the Red Sea (the "Sea of Reeds"), but past the string of lakes between the Red Sea and the Mediterranean, between today's cities of Suez and Port Said. They were headed towards the Sinai Peninsula from the eastern margins of the delta because the way to Gaza was patrolled by Egyptian troops, whereas the route south to the Sinai was not. [\[note 27\]](#)

The Sea of Reeds

The wall of standing waters was indeed from the Red Sea and the lakes, but it stood on the land outside of the sea and the lakes. "The waters that confronted

the Israelites were unexpected," writes de Grazia.

Before continuing with the physical aspects of Exodus, let me present the following:

Velikovsky, and thus de Grazia, followed the traditional notion that the crossing happened at Lake Sirbonis, or a similar location. James Hoffmeier, in *Israel in Egypt* (1997), presents various theories for a crossing of the "Red Sea," including the Gulf of Aqaba.

The derivation of the name "Red Sea" is very uncertain. There are no "red" aspects associated with the waters. The name for the Red Sea in Hebrew is "Yam Suph" which is translated as the Sea of Reeds. Velikovsky, however, offered the following:

"But the name of the Sea of the Passage -- Jam Suf -- is derived not from 'reed,' but from 'hurricane,' *suf, sufa* in Hebrew. In Egyptian the Red Sea is called *shari*, which signifies the sea of percussion (*mare percussio*) or the sea of the stroke or of the disaster."

In line with the lack of evidence for an exodus, it might be noted that we are presented with the following image: "the Lord divided the sea with a wall on one side and on the other as well," plus, following the passage through the gap in the water, the Israelites camp "before the mountain of God."

This exactly recalls the event of 2349 BC, when the Absu -- the sea -- parted at the time of the fall equinox, followed by the appearance of Jupiter on his mountain, "the mountain of God." The "Sea of Reeds" is, of course, the Absu or Duat, referred to as filled with reeds in Egypt. In 2349 BC, during the most fearful period that humanity ever lived through, the Sea of Reeds turned red. Perhaps a rare coincidence, but such details added to Exodus, which obviously is a conglomeration of sources (as de Grazia also admits), point this particular text to legendary status.

The Quiche Maya will record in the *Popol Vuh* a similar passage through a gap in the sea: "a place called Great Hallow" and a mountain "called Place of Advice." Reading from their original sources, the 16th century AD transcribers write:

"Sandbanks was their name for the place where they crossed through the midst of the sea. Where the waters were divided, they crossed over."

-- *Popol Vuh* translated by Dennis Tedlock (1996)

As narrated for our benefit: The arc of Venus moved the water into position to block the fleeing Israelites, then moved it aside for passage, only to have it fall back just as the Pharaoh and his army closed in. Exodus records that the pillar of fire stood before Israel, then moved behind them (to the west). The physical description of the changes in the winds, the movement of the water, and the movement of the pillar support the concept of an electric arc traveling west across the Sinai and part of the Nile delta.

The timing as recorded in Exodus may or may not be correct. It was just sheer luck, but a most monumental event, which would be played back to the Israelites by Moses for years, even though (Jewish legends have it) a hundred thousand Israelites also perished in the collapse of the standing waters.

"Then the Angel of God who went before the host of Israel moved and went behind them; and the pillar of cloud moved from before them and stood behind them, coming between the host of Egypt and the host of Israel. And there was the cloud and the darkness; and the night passed without one coming near the other all night."

-- Exodus

The delay ("the night passed") is difficult to allow physically if this were an extra-terrestrial arc traveling west with a rotation of the Earth. And this certainly would not have happened at night. The arc from Venus could only happen during daytime. It is possible that the day had extended into the night hours, as a number of nations recall. This would be due to the gyroscopic reaction torque twisting the axis of the Earth in a circle to compensate for the initial shock from Venus. China complained of the Sun not setting, some 5 or 10 days.

It is interesting to consider where the axis of the torque of the gyroscopic reaction might have intersected the Earth's surface. This had to be near the equator to be at right angle to the rotational axis. Five days of sunlight in China can only mean that the Earth had tilted over so far that the North Pole faced the Sun. As the Earth rotated, large portions the northern hemisphere would have remained in daylight, including China.

The Exodus narrative claims the arc appeared near northern Egypt and to have come to a standstill. This could have happened as the rotational axis of Earth

started to move to an upright position again. It would have to be daylight, however, and the region would have faced the Sun in order to experience the arc. The arc could have been located in the Mediterranean, for a continuous arc on land would have bored gigantic holes, and been very destructive. Placing the arc in the Mediterranean also suggests the spectacle of water standing up to the heavens, except that it would have been steam rising thousands of miles up, not water. Except for the drowning of the Pharaoh's troops, there is no notice of a flood of cascading water.

So, despite what Exodus claims, it was daytime in Egypt when the arc appeared. The darkness may have been from dust electrically removed from the surface and whipped up by the tornado winds surrounding the arc, to be levitated electrically by the magnetic field surrounding the arc. Tornadoes operate exactly in this manner. But the length of days and night were in disorder, as Iranian myths also claim (notes Velikovsky).

We are thus presented with the spectacle in the Bible, probably with more drama than might be called for. The reported location of the arc could likely have been five hundred miles (800 km) "before" or "behind" but would still have been seen. But at one point it was "in between" the Israelites and the Egyptians. The arc is thus reported to have passed right between the two troops. What a frightful sight that would have been. De Grazia writes:

"Moses could hardly have imagined the horrible immensity of the natural catastrophe. A legend recites that the plague of hail in Egypt had [also] brought great famine to Jethro's Midianites [in the Sinai]. Upon arriving in his 'promised land' [Moses had not originally meant to move to the Sinai] there was little left there but parched earth, dry water holes, flaming mountains, and, Thank God, Yahweh. By now Moses and the leaders must have known that they could go nowhere until they were in better shape all-around and the natural forces had become subdued."

"By that time, Moses must have been as fanatically possessed as any man could be, insane with the problems of a people clinging only to hope and staring wild-eyed and worshipfully at alternative hopes. Whatever he did had to be quite mad. But what he did was rational unto the occasion. He insisted upon his obsessions. He exercised his talents, and those of the Levites and Aaron, and all the capabilities of his instruments."

"He worked Yahweh, the Lord, furiously, wrenching from this Great Father Figure concession after concession, arrangement after arrangement, law

upon law, giving up in the end only his right to cross the Jordan River into the Promised Land [Canaan]."

-- Alfred de Grazia

In the Desert

The actual crossing of the "sea of reeds" has been disputed endlessly by scholars and bible exegetes. It doesn't really matter if nearly all of this sea-crossing description in Exodus was taken from the event of 2349 BC. It probably has little bearing on the overall narrative which is about a people escaping from the servitude of one religious observance and adopting a new and more consistent alternative.

With the previous electric contact by Venus in 2193 BC, the atmosphere had been heavily charged with electricity, although steadily decreasing over time. All along priests had been taking advantage of the atmospheric electric charge as a sign of the presence and favor of the Gods. This was a real phenomenon. Recall that Abraham in his sacrifice of a ram discovered he had no way to light his fire, but God ignited the kindling for him. This practice dates far back into remote antiquity, although all we have are more recent descriptions which only hint at the fact that offerings on altars on high places would ignite themselves.

Aurochs horns had traditionally been used at altars to ignite the flame with electric arcing. But this is the Bronze Age and altars were now clad in bronze with bronze horns. This material conducted much better than cattle horns on stone platforms and overcame the mounting deficiency in the atmospheric electric charge.

After completing the Ark, the Israelites build an altar for offerings. It is made of wood sheathed in thin bronze, with bronze horns at the four corners, facing in towards each other. Yahweh provides the plans. Moses asks Yahweh, "Will it not melt?" There was difficulty getting it to light, but once a spark generated between the horns it stayed lit for over 100 years.

The Moving Sky

The *Midrashim* records that, when the building of the Ark was completed, the sky stopped moving. The contact with Venus had disturbed the axis of the Earth, causing the spin axis of Earth to sweep through a loop. The sky came to a

complete rest a year and a month after the Israelites passed through the Red Sea (Ussher).

The "moving sky" relates only to how the dome of the stars was seen with respect to the horizon. Or it could have been determined by where the Sun rose and set -- one has to assume that even with a heavy overcast, at least the Sun was noticed.

The movement of the stars, on the other hand, would change only as the result of a change in the inclination of the axis of rotation to the orbit of Earth. No other change will make the stars look like they have moved (except, of course, the daily rotation of the Earth). Because of the immense distances to the stars, the stars will look the same no matter what orbit Earth takes around the Sun. It is possible, although unlikely, that the Earth's rotational axis kept up its corrective gyroscopic maneuver for a year and a month.

The repulsive impact was close to the equator, and resulted in the largest displacement of Earth that we have a record of. Venus was half as far away as in 2349 BC, which would have doubled the force of the impact. But the gyroscopic reaction torque was much slighter than usual, moving the arc contact up only 30 degrees in latitude and 180 degrees in longitude (from mid-Pacific to Egypt), in the time span of a half rotation of the Earth.

However, a number of anomalous circumstances might be explained if we assume that the gyroscopic reaction torque completely or almost completely inverted the Earth. Then it would take a considerable amount of time to rectify the location of the rotational axis of the Earth in space. But this was not likely to have happened. It only appeared to be such. We can blame the lack of light and the change in climate for people to have reached this conclusion.

One of the anomalies was the reports that winter followed spring, which would be true for an inversion, but also if the correction took a year. But an extensive cloud cover, and the relocation of the Earth to 30 percent more distant from the Sun would certainly result in the same impression.

The numerous citations by Velikovsky of the interchange of north and south, and especially east and west, in the support of an inversion of Earth, simply do not apply to whatever might actually have happened in 1492 BC. I have quoted many of these in the Appendix "Polar Relocations Disputed," with comments added to explain all of them. We are generally dealing either with exaggerations

of catastrophic condition, or a complete misreading of statements from the more remote past, like the following from *Worlds in Collision*:

The *Ipuwer* manuscript reads, "The land turned *over* like a potter's wheel."

But that makes no sense. Potter wheels do not turn over, and the quotation was altered by Velikovsky to include the word "over." Velikovsky also quotes a pyramid text as "*the luminary [Velikovsky's words] ceased to live in the occident, and shines, a new one, in the orient.*" The pyramid texts date to after 2350 BC, so this is not concerned with the period of the Exodus. The text, in fact, describes the changes in 3147 BC -- typical of Egyptian spells, this is not a narrative concerned with the event of 2349 BC, only the remembered event from the remote past. The "new one" here is Jupiter, which rose in the east, replacing Saturn which had stood in the northwest, and brightened at nightfall in the northwest before traveling east below the polestar.

The extensive cloud cover is still a concern, for the notice of a generation "growing up in darkness" or the Bible complaint about "walking in the shadow of death," would presume that the stars could not be seen. However, the Sun and Moon might certainly be seen, and these would only indicate that the sky was moving in unexpected ways.

In any case, it could not be guaranteed that the Earth would return to its original inclination. Thus it is likely that the 30 degree inclination of the rotational axis dates from this event. My earlier suggestion in the Chapter "Pyramids and Henges" is that the Earth's initial axial inclination was 25.2 degrees.

Gyroscopic reactions are relatively gentle. Even an inversion would not be noticed by humans, except for the relocation of the Sun and Moon in the sky (and climatic changes), and no landmasses would be subjected to earthquakes or even tremors -- only those which absorbed the initial external impulse force. All the talk by any number of catastrophists (besides Warlow, de Grazia comes to mind) about splashing oceans, tsunamis, and crashing mountains is largely imagined. [\[note 28\]](#)

The Ark of Yahweh

Alfred de Grazia gives the following explanation of how the Ark worked, although I believe he has it wrong:

"The ground ark, unlike the pyramid or mountain altar, makes its own divine fire. It does not depend upon a single point high up to provide the electrical discharge. In a small machine, grounded by one pole and pointed to the sky at the opposing pole, the two being insulated from each other, an opposing charge is accumulated at the poles and, when sufficiently charged, the poles exchange a spark, a light, a divine fire. Unlike the pyramid, or mountain, the Ark can be moved to where its sources of strength are greatest and its effects can be most affective for psychological or other purposes."

-- Alfred de Grazia

However, the Ark operated as a device using static electricity, not as an electric circuit. There is no need to electrically isolate the two cherubim. They will arc between their wing tips even if electrically connected. Rather than using stone and an extremely high location, the Ark would have displayed Saint Elmo's fire because it was made of metal and set on a clear flat space. The Ark depended on being a highly conductive object set on a grounded flat plane and thus, in effect, a lightning arrester. When the ground was soaked with water, the minerals in the ground would turn the surrounding area into a conducting surface. When transported at a later date from Shiloh to Jerusalem, the Ark was temporarily located on a "thrashing floor" to keep it operational. It was a matter of finding a location where the ground was flat and conductive.

Moreover, it can be suggested from the construction details that, in effect, the Ark was a Leyden jar, a large capacitor, which means that it could store enormous electric charges (at a potential of 10,000 or more volts). Not just a Leyden jar, but more like a *Van de Graaff* generator. A *Van de Graaff* generator is generally constructed as a metal sphere, where a trickle of static electric charges is introduced to the interior through an opening. The delivered charge accumulates at the interior of the sphere. This induces a charge of opposite polarity on the exterior, allowing the delivered charges to be continuously accepted. A *Van de Graaff* generator is able to hold large charges at very high voltages.

When current, in the form of Saint Elmo's fire, passed through the exterior of the Ark, an opposite charge would accumulate on the gold-plated interior of the box. This would build up a nearly unlimited interior charge which would make the exterior even more positively charged. In this manner the Ark must have attracted an unusual amount of static electricity as a stream of plasma from the

upper atmosphere. Yahweh showed himself at the intersection of the wingtips of the hovering cherubim, sparking and hissing his name -- "Yahweh, Yahweh, Yahweh." [\[note 29\]](#)

The continuous arc would have generated ultraviolet radiation. There are many reported cases of UV burns, including Moses. The arc would also generate X-rays. The Ark was kept in an unroofed double tent, a curtained enclosure -- the Tabernacle. Yahweh could not be casually looked at. The attending priests shaved themselves and wore protective garments and face masks, "lest they die." A number of persons were electrocuted by touching the Ark, some accidentally and some on purpose. Both of Aaron's sons died by electrocution. De Grazia suggests that part of Moses's additional "magic" displays may have consisted of chemical censers used near the Ark, specifically sulfur and phosphorus, which could also lead to chemical burns. [\[note 30\]](#)

The Ark was often carried far ahead of the people in the desert. At night a visible stream of light would rise like a beacon from the Ark. During the day it would look like a diffuse cloud column. This was the column which went before the Israelites day and night. It was a function of the exceedingly high atmospheric electric charge, as might be expected since the Earth had received a recent electric discharge from Venus.

The pillar of fire at night was a visible column of plasma at glow level (not at arc level) connecting the ground plane to the upper atmosphere via the two angels on top of the Ark. During the day this would look more like a column of smoke -- an effect which may have been augmented by the censers of the Tabernacle. The smoke would ionize and outline the plasma, even at dark mode level. Only at the wing tips of the angels was the flow of electricity concentrated enough to go into arc mode. The Israelites followed a forty-year path of connected conductive regions in their wanderings. Rest periods would result when the humidity lowered and the column disappeared (and when cattle and sheep needed grazing). The column would reappear when the overhead conditions changed. (Further below I will suggest another source for the image of a column of light and smoke.) [\[note 31\]](#)

Other nations might very well not have noticed that, under these new conditions, a simple metal box with up-pointed spikes set on a grounded plane would do what in previous years had required tall stone structures. As a weapon of war, the Ark would have been seen by the enemy as the approach of the God of the

Israelites -- frightening the inhabitants of besieged cities and the troops of opposing armies. The visible acts of Gods were undisputed in antiquity.

When the Ark was moved to the temple at Jerusalem in 900 BC, after having been outside in a tent on the plain of Shiloh for 512 years, the displays of static electricity had declined noticeably. The electric display may have started to falter. Josephus says the electric fire stopped in the first century BC -- after 1400 years.

The Psychosis of Yahweh

De Grazia dismisses the concepts of a developing subjective consciousness during this period expressed by Julian Jaynes in *The Origins of Consciousness in the Breakdown of the Bicameral Mind*. De Grazia writes, "Jaynes was not able to cope with the historical materials, largely because he relied upon conventional chronology." De Grazia dismisses the whole concept of the bicameral mind. As he states:

"In reality it was the catastrophes of the world whose terrible stresses made hallucinatory leaders out of borderline cases and staunch believers out of normal people."

-- Alfred de Grazia [\[note 32\]](#)

This serves to support de Grazia's extensive analysis of the politics of the exodus and the psychology of Moses. But as Jaynes had warned, de Grazia is unable to distinguish a bicameral mind from a fully functional human and de Grazia's description of Yahweh reads almost exactly like a bicameral Moses. Yahweh *is* Moses, but as the separate right hemisphere of his mind. In effect Moses had a split personality. This is, in fact, how Jaynes defines the bicamerality of the mind -- the independence of the right hemisphere which can guide the verbal left hemisphere and which, in earlier times, would order the other half around verbally. Even today the right hemisphere imposes itself completely on schizophrenic individuals. The rest of us, having learned to silence the voices, still frequently hear the right hemisphere as the unvoiced utterings of *oughts* and *shoulds* -- "close the door," "turn off the light," "do you have your keys?" Moses, as a pre-conscious human, was guided in what he did by the right hemisphere of his mind and experienced this as a separate "being" who spoke to him.

When de Grazia writes, as above, "it was the catastrophes [which] made hallucinatory leaders out of borderline cases," he is entirely correct in that the events of the period were certainly stressful, but those are also the conditions which foster subjective consciousness. Jaynes has noted (without any reference to worldwide catastrophes) that this period saw the first light of subjective consciousness in individuals, first in bemoaning the failing presence of the Gods and their guidance, and then as a reaction to the press of strangers. These were only two facets in the series of unpredictable events and novel conditions which changed us as humans. The only "evolutionary" solution was to engender the ability to imagine what might happen in these new situations.

Moses certainly had the imagination and ability to organize the exodus from Egypt of a large group of people and keep it organized under exceedingly difficult conditions. (Josephus claimed, in the first century AD, that Moses had previously led a military expedition to Ethiopia.) The only thing that he failed to imagine, much later, was the actual entry into Canaan and the whole new set of problems and conditions to be dealt with in the conquest and settlement of this new land. Forty years earlier the voice of Yahweh had driven him; by the time he reached Canaan, Yahweh had gone silent. Moses dawdled endlessly, and eventually it cost him his life. [\[note 33\]](#)

Allow me to quote from de Grazia extensively, for his source document, the second book of Exodus, is important. The writing in Exodus is personal without being self-serving, and is a rare window on an age which changed humanity. The nexus of catastrophe and the human mind, desperately seeking to resolve the unpredictable, is key to understanding how we, within the next thousand years, became fully human -- that is, how we evolved subjective consciousness and started teaching this to our children, silencing the demanding and controlling right hemisphere, and, most importantly, how we came to rely upon the imagined spaces of consciousness in the left hemisphere to help us live in the changing world.

"The abrupt commands of Yahweh, his great noises, curses, and marvelously clear consultative advice enrich the verses of the Books of Moses. The lack of explanation is typical of both hallucinatory voices and of Yahweh's words."

"Yahweh says and Yahweh does. What he says consists of describing himself, expressing his emotions, relating what he has done, instructing as to what must be done, and foretelling what he will do."

"All that Yahweh says is in an absolutely authoritative mode. This includes those expressions which comment upon behavior that is against his will or interests."

"What Yahweh does, supplementing what he says, is to cause all things to happen, even expressions of disobedience coming out of 'free will,' in the sense that if he wished to do so, he could make people will what he wanted them to will."

"He even asserts a power to be bad, to do evil. He is not bound by notions of good or evil. 'Who makes peace and creates evil, I Yahweh do all this.'"

These observations by de Grazia are completely archetypal and descriptive of the right hemisphere of the brain, and you will recognize them instantly if you are familiar with Jaynes's research on schizophrenia, hypnosis, talking in tongues, complex automatic activities, and the narratives of antiquity.

"Yahweh writes; he organizes lists or rules; he keeps books; and little else that is technical; he is the product, not the fountainhead of the science of Moses."

"Write this in your book," Yahweh commands Moses. The organization of lists and rules is also archetypal of schizophrenia, but the phrase "little else that is technical" is not quite fair. Typical of a right hemispherical presence -- the hallucinating voice -- Yahweh is quite accomplished technically. He explains to Moses the new calendar. Moses has to return to Yahweh with questions, for he does not understand. It is Yahweh who designs the Ark, and sets all the safety requirements for the attending priests, their clothes, the procedures, the curtained tents, and all the altar appurtenances.

However, it is certainly correct to say that Yahweh was "the product of the science of Moses." As with us, the right hemisphere of Moses's brain had access to all that he had learned, and as with us, the right hemisphere could draw together physical concepts and synthesize disparate parts into a working whole -- in short, solve problems -- and then deliver the solutions to the conscious left hemisphere, as if out of thin air. And Yahweh is quite well aware of what problems Moses is capable of solving without help. At one point Yahweh demands an Ark design with red, blue, black, and white fire. Moses asks how this might be done, and Yahweh, in a fashion absolutely typical of the annoyance often displayed by the right hemisphere today, answers, "I fabricate my glory; you make your own colors."

De Grazia took this anecdote from a secondary source which quoted some Midrash tradition. The Midrash is the collected Jewish commentary on the Bible, originally oral, but reduced to writing after the second century AD. It thus constitutes a comment some 1600 years after the Exodus.

The colors, except for blue, are the same directional colors as will be found in the Maya *Chilam Balam*, which suggest that these are the four fires of the cardinal directions, "the four ancient khu's who dwell in the hair of Horus," or, as the *Chilam Balam* has it, the four directional trees. As I have already suggested in previous chapters, these are likely to be the polar plasma plumes in the north and south, and the edges of Van Allen belts in the east and the west.

The colors here match the colors of the trees of the cardinal directions described by the Maya, except that blue is substituted for the Maya's yellow of the south. (I am assuming that the order of the colors follows the rotation among the compass points.) The assignment of colors to compass points also occurs in China, in Central Asia, and among North American and Central American tribes. No two sets of colors are assigned to cardinal points the same way, however.

As Jaynes points out, it is a transitional period. The attendant visual hallucinations have disappeared -- God no longer strolls with Adam in the cool of the evening. Yahweh has become a disembodied voice. Only one time does Moses speak face to face with Yahweh. Fifty years later Joshua is spoken at, rather than spoken to by Yahweh. "At times Joshua is so uncertain he has to cast lots." [\[note 34\]](#)

The Third Return of the Axis Mundi

As the Earth increased its orbit in 1492 BC, it would again have to adjust its electric charge to its new location. Again the *axis mundi* appeared in the north and in the south. Peculiar to the south was the fact that in 2349 BC the polar plume had risen directly (or nearly so) out of the gap in the Absu, standing next to the blazing image of Jupiter. I detailed this resurrection of Jupiter in a previous chapter. In the narrative of Exodus this imagery is understood as Moses holding up his staff to keep the waters of the Red Sea parted.

About the northern polar plasma plume, Milton Zysman suggested in 1994 (at a Velikovsky Symposium), that the pillar followed by the Israelites for 40 years was an extended aurora. He wrote, about Velikovsky's developing causal theory:

"Since meteoric showers, great and small, are understood to be debris entrained by comets, Velikovsky took the next logical step by gleaning the Bible and associated Talmudic sources for evidence of a comet during Exodus and Joshua."

"It was then that the 'mysterious pillar' became the tail of the protoplanet Venus."

So claimed Zysman, and continues, quoting Velikovsky:

"Because of the proximity of the Earth, the comet left its own orbit and for a while followed the orbit of the Earth. The great ball of the comet retreated, then again approached the Earth, shrouded in a dark column of gases which looked like a pillar of smoke during the day and of fire by night and the Earth once more passed through the atmosphere of the comet, this time at its neck."

"It has been for some time this author's opinion," states Zysman, "that this 'mysterious pillar' is not a comet's tail, but the Earth's north and south magnetic poles illuminated by the joint action of electric discharge and the commingling of Earthly and cometary gases. In other words, a giant aurora."

A plume of plasma in glow mode at the magnetic poles would be a much more likely candidate, which I have already described as extending 20 Earth diameters up into the plasmasphere (160,000 miles, 260,000 km), and thus visible from anywhere on Earth. Auroras do not extend more than 300 miles (500 km) above the surface of the Earth and do not assume the shape of pillars. The coloration of auroras is limited to the atmosphere and stratosphere, where Oxygen and Nitrogen are encountered. Zysman is correct in locating this at the magnetic pole.

The pillar shows up in the mythology and legends of many people, although with some sparsity, for the column did not do anything. It was just there. The suggestion, today, that these recollected columns only refer to the Saturnian planetary polar configuration from prior to 3147 BC is an error, for the polar columns were seen again and again in antiquity. Only the terse history of the world recalled in the Maya *Chilam Balam* books is specific about how many times that occurred. The four trees which hold up the sky, and are said to commemorate the previous destructions of the world, appear three times, after 3147 BC, after 2349 BC, and after 1492 BC, each time after the massive

"destruction of the world." The "destructions," as listed by the *Chilam Balam*, can be dated to match information from the Eastern Mediterranean region. (As mentioned earlier, ballcourt markers from Copan suggest nine appearances of the northern plume, seven for the southern plume.)

In addition, the *Chilam Balam*, in its severely abbreviated history of the world, categorizes the event of 1492 BC, from the translation by Ralph L. Roys, as follows:

"But it was (over) the whole world that Ah Uuc Cheknal [he who fertilizes the maize seven times] was set up. He came from the seventh stratum of the earth, when he came to fecundate Itzam-kab-ain, [the Earth] when he came with the vitality of the angle between earth (and) heaven."

Roys suggests another translation of the last line ("when he came ...") which reads, "then he descended while the heavens rubbed against the earth." This looks like the sixth appearance of the "Celestial Cow" -- with the Van Allen belts in glow mode.

During Moses's 40-day absence, while he was communing with God on the mountain of the Law Giving, Aaron manufactured the Golden Calf idol for the impatient Israelites. *"Here are thy gods, Israel, the gods that rescued thee from the land of Egypt"* -- Exodus 32:4. ("Elohim" for "gods".) The calf did not last long, for when Moses returned from the mountain, he destroyed the Golden Calf. This may be an indication of how long the Celestial Cow stood in the skies after first appearing sometime after 1492 BC.

The Golden Calf, as the Hathor Cow, was an Egyptian false Goddess to Moses. Which may also be why it did not last very long. When Moses came down from the Mountain, he carried the Ten Commandments, all the laws, and all the design details of the Ark of the Covenant which was to be the seat of the God of Israel. He destroyed the Golden Calf.

In the third year after leaving Egypt, God orders Moses to create a brass serpent mounted on a pole -- as a medical device to be used to cure snakebites. This brass snake lasted 800 hundred years. Hezekiah finally destroyed it after 700 BC. [\[note 35\]](#)

This is the only hint at how long the polar plasma plumes may have lasted, and we can suggest from the three-year delay, either a duration of only a few years or a duration well beyond decades. The shorter time seems more likely.

Zysman suggests that the "column" which lighted the night and marked the north for Israel during wanderings in the wilderness, was important enough to have been additionally venerated in the temple of Jerusalem 500 years later. He writes:

"It may have evaded the scrutiny of even the most assiduous Velikovskians that there is very little direct evidence for the appearance of a comet during both the Exodus and the Joshua stories. All the indicators of a great meteoric shower are in place and it can be argued that any well-informed tribal leader or court magician would have little trouble inferring its involvement, yet we have no specific mention of a comet being observed before or during the event."

Let me comment on that.

There is specific mention of a "comet," but only by those people who saw the display. Most of the world saw nothing, apparently even India, where the arc may have traveled partway through the Indian Ocean and produced vast amounts of steam and water vapor. The Greeks, not directly affected by the arc or needing to worry about their own survival, saw Typhon. (On the other hand, the later strike at the time of Joshua could have landed anywhere on Earth to produce the catapulted rocks and bolides.)

I doubt very much if this was an asteroid shower so extreme that people throughout the regions migrated *en masse* for that reason -- the Greeks (Ionians), Dorians, Phrygians, Carians, Lycians in the Eastern Mediterranean, the Mitanni, Hyksos, Hebrews, Kassites, Persians, in the Near East, and the Central Asiatics into Pakistan, India, and regions north of the Himalayas. What were all these people fleeing from? Ice cubes and snowballs falling from the sky? Such a shower never returned, yet the migrations continued for hundreds of years.

Primarily they were all attempting to escape from the dreadful climate which followed on 1492 BC. Over the next hundred years the grass of the steppes turned brown, the central lakes of Asia dried up and turned into deserts. They headed for what they knew to be the fruitful agricultural lands of the civilized nations which were largely unprotected. Joshua did the same.

Joshua and Jericho

As the cloud cover starts to lift, and after forty years of wandering with their herds throughout Arabia, the Israelites started the invasion of Canaan from the east. They crossed the Jordan on a dry bed, for an earthquake had just blocked the river with a fallen bank. It was seen as a display of the favor of their God. During this period earthquakes still occurred frequently.

The walls of Jericho also fell because of an earthquake. The Israelites had walked the Ark of the Covenant around the city for seven days. When the Ark lit up in response to the subsurface piezoelectric effects generated before the earthquake, they knew that the walls of Jericho would fall and the Israelites blew their trumpets as the shifting Earth also started to squeal. [\[note 36\]](#)

The Israelites proceeded with the invasion of Canaan, a war which would take 14 years. Near the end, in about the 12th year, Joshua orders the Sun to stand still in the heavens for the span of a day to allow completion of a battle. During the same battle stones fell from heaven.

"And the Lord cast down great stones from heaven upon [the Canaanites]; they were more which died from hail stones than they whom the children of Israel slew with the sword."

-- Joshua 10:11

This happened, it is estimated, in 1440 BC, 50 or 52 years after the exodus, and is the second time in this era that Venus made electric contact with Earth and exchanged a plasma discharge. We do not know where the strike connected to Earth. Explosively launched rocks from an arc striking on land, rather than the sea, can travel immense distances and even be ejected from Earth. The "great stones from heaven" may have come from anywhere on Earth. [\[note 37\]](#)

Eva Danelius, in "Did Thutmose III Despoil the Temple in Jerusalem?" in *Journal of the SIS* (1977/78), also retells her experiences at Gibeon:

According to the [Septuagint] version "the Lord struck them (the Amorites) with a panic, on account of the children of Israel, and the Lord routed them, with a great slaughter, at Gibeon. And they [the Israelites] pursued them by the way of the ascent of Oronim, and smote them. .. And as they were fleeing from before Israel, at the descent of Oronim, the Lord poured a storm of hailstones from heaven upon them... so that there were more who died by the hailstones, than the children of Israel slew with the sword in battle."

Josephus, in about AD 100, adds "the discharge of thunderbolts and the descent of hail of more than ordinary magnitude."

The Pharaoh [Thutmose III] obviously spent the night at Beth Horon the Nether (today: Beith 'Ur et-Tachta), right at the entrance to the dangerous part of the defile, which is already in the mountains. The next morning, according to the Annals [at Karnak] (lines 58/9), "My majesty proceeded northward carrying my father Amon [lacuna] before me...."

Danielius adds:

This is the only instance I know of in Egyptian records where we are told that statues or images of the gods were carried into battle, as the Hebrews carried the ark.

What kind of fear had gripped the Pharaoh that he felt it necessary to take this precaution? Why did he take it here, and only here, once in a lifetime? The objective difficulties of the way ahead of the army were considerably less than those which had confronted, and been overcome by, the Egyptian army in [Ethiopia], where mountains 10,000 feet (3000 meters) high rose sheer above narrow canyons filled by torrential streams.

Danielius had received a bolide of the type that apparently had fallen "at that time and place, according to the Biblical record" from H. H. Nininger, founder and director of the American Meteorite Museum.

She continues with:

When I showed the aerolite to the stonemasons working by the roadside at 'Ur et-Tachta (Beith Horon the Nether), they immediately recognised it: "Hajar min 'Allah!" ("A stone from Allah," i.e. from heaven), they exclaimed. According to them, the slope going down into the wadi, and the wadi itself "the going down to Beth-Horon" of the Bible, were full of stones like the one in my hand. The same answer I got from the teachers at the local schools.

Though this cannot be called conclusive, the amazing familiarity of the local Arabs with the phenomenon of meteorites seems to justify the conclusion that the Biblical story is based on reality. As Nininger [of the American Meteorite Museum] and other experts have abundantly proved, meteorite falls have been known and remembered for centuries among local

populations, and more often than not considered intervention of the God(s) in human affairs. And here we meet with a second conception of those times: the understanding that there was a metaphysical connection between a God, His people, and His land.

Thutmose was not afraid of a human enemy but was reluctant to enter a road where "The God of the Land" had intervened, from heaven, to help His people; and Thutmose perfectly understood the motivation of his officers who preferred one of the other deities, and neither blamed them nor punished them, but let them choose. And this fear, too, explains why he had the standard of "his father Amon" carried before him: Amon was a meteorite god, able to protect his children from a calamity similar to that suffered by the five Amorite kings.

Velikovsky, who estimated the date of 1440 BC, had some problems bridging the gap between the exodus and the order by Joshua for the Sun to stand still, feeling the need to span 52 years, which is a figure derived from Mesoamerican sources. Celebrations of the renewal of creation in Mesoamerica were based on 52 "Tun" years, which varied with the calendar in use. But after 1492 BC the actual period between apparent close "approaches" of Venus was 50 or 51 solar years. The actual event of Joshua thus occurred in 1442 BC (1492 less 50). Details are given in Appendix B, "Celestial Mechanics."

I suspect that the arc may have traveled through mainland Asia and towards Europe, and may have touched Mesoamerica. Part of the travel must again have been through oceans, for the cloud cover again returned -- so say Mesoamerican sources. For a second time in quick succession, Mesoamerican culture suffered destruction. The Olmecs recognize the agent involved and take note of the interval since the previous catastrophe. The end of the world would now be expected every 52 Tun years on the Olmec calendar. A day was assigned in the 260-day Tzolkin calendar round to correspond to a day in the new 360-day Haab calendar. This day combination would repeat only once every 52 calendar "years" and once every 52 years all of Mesoamerica trembled in fear awaiting sunrise or doom. In Mesoamerica the travels of Venus, as Quetzalcoatl, the feathered serpent, continued to be watched and recorded with great anxiety for the next 3000 years. Venus approached Earth numerous additional times during the coming centuries, but without striking. [\[note 38\]](#)

Abandoned by the Gods

It was a transitional period not only for the Israelites, who would continue to cling to their one God, but also for other peoples, who felt abandoned by their many Gods of old. Mercury seemed to have remained. Mars possibly was not seen since it had no magnetic field or atmosphere to support a coma. Mercury's duties (as Thoth of the Egyptians) were extended to include creation and guide for the dead.

The period after 1500 BC saw mass migrations of tribes in Southeastern Europe, Greece, Anatolia, Iran, and the Arabian peninsula. The volcano on the island of Thera in the Aegean explodes during this period, sending a tsunami 600 feet (200 meters) high towards the coast of Greece and Asia Minor. The harbors and quays of Crete, just south of Thera, sank below the level of the ocean.

As Jaynes suggested, this period also saw the first glimmer of subjective consciousness -- the effect of the widespread catastrophes, mass movement of peoples, and the loss of the familiar commands and admonitory voices of the Gods. It is also the start of our current religious beliefs. Like abandoned children, mankind took the blame for the leave-taking of the Gods and the silencing of the voices. Supplications to the Gods and pleadings for forgiveness first appear in extant documents at this time (that is, after 1200 BC), as do devils and evil spirits, and the search for significant omens. This attitude toward the Gods is conspicuously absent before this period. A superstition of spells and magic starts to envelop the Middle East. [\[note 39\]](#)

In Mesoamerica, pleading with the Gods includes the periodic destruction of temples and monuments and their rebuilding or overbuilding. This starts after about 1200 BC by the Olmecs and continues into the era just prior to the arrival of the Spanish in AD 1500. We have to presume that the bloodletting, which so characterized Mexico at the time of the Spanish arrival, also had its genesis at this time, although I will suggest later that this probably started after 685 BC.

Fifteen hundred years earlier, mankind had been cast from Paradise but had been sustained by the guiding voices of the Gods. As subjective consciousness bloomed in response to the catastrophes of 1500 BC, and especially to the disorder of wandering tribes, the voices disappeared. Laments for the loss of the personal Gods were added to the literature of the Middle East after 1300 and 1200 BC. They are echoed in the oldest book of the Bible, Job, as in the *Ludlul bel Nemegi*.

*My God has forsaken me and disappeared,
My Goddess has failed me and keeps a distance,*

The good angel who walked beside me has departed.

-- Shubshi-Meshre-Shakkan in *Ludlul bel Nemegi*, Mesopotamia, 13th century BC

Endnotes

Note 1 --

Middle Eastern dating is based on comparison of pottery and other objects with Egyptian wares. This dating in turn is based on the various fragments we have of the list of dynasties and pharaohs prepared by Manetho in Ptolemaic Egypt. The original text is lost, but it is quoted partially by many authors in antiquity. The chronological sequence was set out in the 19th century, and is incorrect by about 400 to 600 years, mainly the period of 1200 to 700 BC. Thus the archaeological date of 1200 BC, when all cultural activity in the Middle East came to a sudden halt, is actually 800 BC.

This accounts for a gap in the archaeology of Greece called the "Dark Ages of Greece," after which material culture (of the Mycenaean Greeks) picks up in 700 BC exactly where it left off in 1200 BC. This missing era includes such quasi-mythological adventures as the Trojan War, the exploration of the Black Sea by Jason, and the Dorian invasion. The "Dark Ages of Greece" extends to all of the Middle East. The Greek and Roman historians of 2000 years ago disagree completely with this chronology.

As P. John Crowe, wrote in "The Revision of Ancient History" (*SIS Conference*, 1999):

"Archaeology, when interpreted with an open mind, has now actually proved beyond reasonable doubt that the Dark Ages did not exist, but the proof is ignored. Vested interest in the status quo has won the day. Huge amounts of public money are being spent on studying this Victorian invention, and hundreds of books written about them without resolving their historicity. Sadly, it seems no one in academia has had the courage publicly to question seriously the basic assumptions upon which Egyptian chronology, the progenitor of the Dark Ages, is founded."

Many archaeologists prefer pottery shard dating over Carbon-14 dating, especially because inspection of shards is much less expensive and Carbon-14

dating was entirely destructive until recently. If the dating by pottery shards is correct, it should also be more accurate (if the pottery dates don't hinge on a fictional chronology), for there is an almost complete year by year known sequence of, for example, amphora used in the wine trade by the cities of export.

I originally suggested that Hutchinson must have used Carbon-14 dating, so that the approximate dates of 1400 BC and 700 BC could be accepted. But this, I now realize, is a coincidental extension of the "Dark Ages of Greece," although the quoted dates of 1400 BC and 700 BC fit my narrative of the incident of circa 1500 BC. Alfred de Grazia, in *The Iron Age of Mars* (2nd ed. 2009), concurs that these dates may indeed reflect the devastation by Venus in circa 1492 BC and the later destruction by Mars starting in 806 BC.

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Note 2 --

As an example of an 8th-century BC destruction, consider the excavation of Troy (Hisarlik). Four- to six-foot deep layers of burned material were found here, as in many other cities (citadels). No ashes from forest fires or from a volcanic eruption have ever exceeded six inches. This suggests simultaneous earthquakes, volcanism, forest fires, and hurricane winds. It suggests, in fact, the deposition of wind-carried burnt materials, including soils, specifically to hilltop locations.

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Note 3 --

Using the kinetic energy of Earth based on the forward orbital speed (only), the change of 1500 BC amounted to four times the change (loss) in energy of either 3147 BC or 2349 BC. The disturbances of 747 BC, by comparison, represent a change of only 1/8th the magnitude of 3147 BC.

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Note 4 --

I have probably overemphasized Quetzalcoatl for Mesoamerica, except as recognized from his properties. With the Mexica, at the time of the Spanish invasion, Quetzalcoatl did not have much standing. Not so, however, with the Maya.

Neith probably represents the southern ball plasmoid first seen in 10,900 BC. The crossed arrows used as her identifying name represent the beams of electrons shooting like arrows past Earth.

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Note 5 --

Seven approaches by Venus are noted in the Maya *Chilam Balam*, of which four can be assigned to the period of 2349 BC to 2193 BC. This is also the only period of time when the interval between approaches was 52 solar years.

There is good reason to believe that the orbit of Venus crossed the orbit of Earth until 1492 BC, but not afterward. In 1994, Lynn Rose and Raymond Vaughan calculated, on the basis the Assyrian clay tablets known as the *Venus Tablets of Ammizaduga*, dating to the 7th century BC, that the eccentricities of the orbits of Venus and Earth were still 0.15 and 0.10 respectively before 670 BC (reported at the Kronia Conference, Portland, 1994). This suggests the possibility that in the 7th century these orbits did not cross.

A calculation can be made of the perihelion and the aphelion (the closest and furthest distance from the Sun) of the orbits of Venus and Earth for various estimates of orbits (based on calendar information) since 3147 BC. This reveals that the orbit of Venus could have overrun the orbit of Earth, although this would only happen if the orbits of Venus and Earth precessed (rotated about the Sun) to a relative location around the Sun where the perihelion of Earth coincided with the aphelion of Venus. See Appendix B, "The Celestial Mechanics" for estimates.

Thus in more remote antiquity, at long intervals, and probably for periods of hundreds of years, Venus would appear as a planet on an outer orbit. Rather than remaining within some 30 degrees of the Sun, Venus would move across the night sky from horizon to horizon (rather than to just show in the early evening and before morning), as other planets do. Normally, because of its brilliance, Venus would have been seen during the day also.

This infrequent appearance of Venus beyond the orbit of Earth explains the strange Sumerian legend where Inanna (Venus) visits hell or the netherworld (*Inanna's Descent to the Nether World*). The "netherworld" is the zodiac of the south skies, of course. In the legend she is stripped of her garments (loses her coma and tail), losing one garment at each of seven gates (the rings of the Absu), and her body is hung from a hook (came to a visual standstill), to be

rescued later. If Venus moved beyond Earth and further away from the Sun, the coma and plasma tail would certainly reduce. Even moving away from Earth would seem to do this visually. In line with Earth, the tail of Venus would not be seen. The movement through "seven gates" (the Absu) places the story in the southern skies. To be "hung from a hook" implies that a foreshortened plasma tail would have pointed up (or down), away from the location of the Sun 180 degrees removed in the zodiac. But being "hung from a hook" is actually a better simile for the fact that the trajectory of Venus would be slower than that of Earth at this location, and Venus would have been seen in retrograde motion (as Earth passed Venus) and thus seemingly to come to a stop. This happens today with Mars.

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Note 6 --

It is suspected by some that Venus might have turned over at this time, so that she started to rotate backwards, as is the case today. I doubt that this happened. As a satellite of Saturn, Venus may never have had much of a spin. The earliest iconography seems to indicate that Venus was already spinning backwards.

Because of Venus's extremely dense atmosphere (almost like an incompressible liquid), it is possible that it did not experience the electric repulsive impulse on one hemisphere, which would have changed its orbit. If the atmospheric shell absorbed the shock, the pressure might have spread entirely around the planet, compressing the more rigid inner sphere of rocky material equally in all directions instead of moving the planet in space. It is also possible that a significant part of the atmosphere was simply blown away from the planet. Venus, in fact, seems to change its orbit very little over the course of 3000 years. See Appendix B, "The Celestial Mechanics" for estimates of the length of the "Venus cycle" from various periods between 2349 BC and today.

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Note 7 --

A Pacific Ocean impact might be confused with the Eltanin impact site in the far Southeast Pacific. The Eltanin impact is apparently the only "impact evidence" ever found in an ocean, aside from craters at the continental slopes. The Eltanin impact dates from 2.15 million years ago. This was first detected (in 1955) via ocean bed iridium and displaced diatomic material (ocean bottom sludge). An impact site was determined in 1966 as an 82-mile (132-km) diameter area, in 3-mile-deep (5-km-deep) water. A compressive impact to the ocean, because water

is incompressible but very fluid, would leave no evidence aside from tsunami damage to the continents and possible transverse impact to adjacent continental slopes.

The impact of 1492 BC was likely experienced near the equator, since this would have happened "in early spring," as Exodus records. The line extending from the Sun via Venus to the surface impact site would have passed below the center of the Earth, thus moving the southern hemisphere south, that is, away from the Sun. It might be suggested that the very large displacement of the Earth (to a new orbit) was entirely due to the fact that the impact location produced very little of a gyroscopic reaction. Rather than the impact energy being absorbed by a gyroscopic response, it was transmitted directly to the center of the Earth.

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Note 8 --

The suggestion that Lake Titicaca was lifted to its present elevation of 12,500 feet through some unspecified catastrophe was made by Velikovsky in *Earth in Upheaval* (1955). The archaeological record would have suggested that this would have happened in historic time, after Tiwanaku (Tiahuanaco) was already built. But the archaeology of this site, the conditions of local agriculture (abandoned terraces at the snow line, sterile conditions, "maize will not ripen"), or geological details (raised beaches, slanted strand lines, marine crustaceans) cannot sustain this. It seems more reasonable to suggest that the Alto Plano and the Andes mountains were raised maybe 3000 or 4000 feet (1000 to 1500 meters) by the intrusion of magma below the established Cordilleras.

What is more convincing is the occupation of the site after 1400 BC and a thorough exploitation of the available agricultural conditions, not the least of which is that the large lake acts as a heat sink -- in a manner also found to be in use on the eastern slopes of the Andes in the same region, resulting in the ability to sustain a population of a half million or more. Tiahuanaco was built after 800 BC. A drought in about AD 1000 ended the preeminence of the site.

It is possible that the Andes moved up in response to the compressive shock in the Pacific. Even though water is an incompressible liquid and the shock would have transferred to the underlying sea bottom, it would also have radiated out from the location of the impact. But I think the occurrence of marine specimens in lakes of the Andes provides the most solid evidence, and that only as

evidence of a giant tsunami from the ocean.

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Note 9 --

If Venus and Earth were on orbits with radiuses of 0.72 AU and 0.83 AU respectively, which does not allow for the eccentricity of the orbits (see Appendix B, "the Celestial Mechanics" for these values), they would have been traveling at speeds of:

Venus: $2 * \pi * 0.72 * \text{AU} / 225 = 1.87$ million miles per day and

Earth: $2 * \pi * 0.83 * \text{AU} / 273 = 1.77$ million miles per day.

The difference in speed of **100,000 miles per day** would largely determine how long an electric contact would last. If the plasmaspheres of both planets measured about 40 planet diameters, then together they would span about $2 * 40 * 8000 = 640,000$ miles. The total time of the contact would thus be limited to about six days. (On an inner orbit, Venus traveled faster than Earth.)

There was near continuous arcing in 1492 BC, unlike the electric contact in 2349 BC which consisted of discrete plasmoids. But the lifted water vapor which started to cover the skies would have cut short the electric arc. West of the impact location (Asia and North Africa) the arc would have touched down, but after crossing half of the Atlantic, it would have mostly dissipated at the cloud cover which was moving east from the Pacific.

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Note 10 --

If Earth and Venus were on circular orbits, they would not have approached closer than 10,000,000 miles, $(0.83 - 0.72) * \text{AU} = 10,230,000$ miles (16,473,000 km).

I have used Velikovsky's claim for the "scorched stones" of Arabia. But it might be suggested that this happened in 685 BC, when Assurbanipal notes Venus as "raining fire over Arabia."

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Note 11 --

There is a very large secondary literature following up on the hints first supplied by Velikovsky's *Worlds in Collision* (1950). Talbott dismisses Velikovsky's findings, arguing that the "story" of Exodus is largely a formal repetition of elements taken from the events at the end of the "Era of the Gods," but Talbott and his group have never described this ending event. I have.

It is probably true that that older story-constructs were bound to be reused for later events. I have, in fact noted this for the Exodus. It is overwhelmingly obvious.

Velikovsky notes that he had trouble deciding whether to attribute events of 1492 BC to Venus or to Jupiter. He settled on Venus and stated that in the end he was completely convinced. But I am, at times, not completely convinced. Reading *Worlds in Collision* with the development of the Saturnian Theory (as developed in this text) and the plasma information in mind, you will be able to detect when his sources substitute Jupiter for Venus, or when the more likely alternative reading would point to Saturn rather than Jupiter. There are actually sources pointing directly to Jupiter as the agent of destruction, but these are few and probably erroneous, for an electric interaction with Jupiter would have been wildly destructive, as we saw for the event at the start of the Younger Dryas.

More frequently Velikovsky uses sources which are obviously from the 8th and 7th century BC, and applies them to the events surrounding the Exodus of 1492 BC. This includes quotations from the Hebrew prophets, the 7th or 6th century *Zend-Avesta*, quotations from Assurbanipal which are obviously contemporaneous with his reign, and the use of the *Venus Tablets of Ammizaduga*. Unlike the misidentification of Jupiter for Saturn, these are more serious faults.

I also have objections to the frequent application of "modern physical understanding" to ancient texts when these texts are not at all clear. Velikovsky tends to read many phenomena as "meteors" when in fact this is often completely unwarranted from the textual descriptions, and the phenomena would better be left as unexplained. Frequently also texts are taken to be metaphorical (analogical) understandings, which seems totally uncalled for.

Similarly with a number of quotations to the effect that dawn and sunset were interchanged. In fact, if you turn the spinning globe of the Earth upside down, you will find that the sun still rises in the east. The period of increased night or day is due only to a change in the location of the Earth's axis. Spin does not stop,

for the amount of energy required to bring rotation of the Earth to a stop is a trillion times greater than it would take to turn the Earth upside down.

But the gyroscopic reaction of the Earth to an external torque will cause the spin axis of the Earth to rotate through a circle and the Sun will seem to stand still, depending on where you are located on Earth. The reaction to an external torque is a twist (torque) with the axis of the torque at right angles to both the spin axis and the axis of the applied external torque. The gyroscopic reaction will be smooth in starting and stopping, and cause only minor geological disturbances. Seismic reactions to the initial shock will be violent and longer lasting. Neither Velikovsky, nor any of the later researchers (except one), have considered gyroscopic reactions.

The notion of the Earth turning upside down, or that the pole relocated, is discussed in the Appendix "Polar Relocations."

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Note 12 --

John M. Barry, in *The Great Influenza* (2004), writes:

"[T]he relative lack of impact [that the influenza epidemic of 1918] left on literature may not be unusual at all. It may not be that much unlike what happened centuries ago. One scholar of medieval literature says, 'While there are a few vivid and terrifying accounts, it's actually striking how little was written on the bubonic plague. Outside of these few very well-known accounts, there is almost nothing in literature about it afterwards.'"

The Black Death (bubonic plague) of the 14th century AD killed half the population of Europe.

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Note 13 --

Although repulsive electrostatic forces operate between planets enclosed in a single plasmasphere initially, a difference in charge between the planets will also be seen as a voltage difference (easily amounting to millions of volts), and especially as the charge of the facing hemisphere of the secondary is induced to an opposite polarity from the primary. This will cause an attempted charge equalization, resulting in an arc from one planet to the other. The arc, to avoid increased resistance, will travel between the nearest surfaces, thus impinging at

a right angle to the surface. The arc will not remain at one surface location, but will move, as the planet rotates, to an adjacent region as that region comes closer, and will attempt to hang up (slow or stop) at locations of higher elevation. The Earth in rotation moves at a rate of about 500 miles per hour (800 km per hr) past the arc.

The production of the arc is entirely equivalent to terrestrial lightning. As negatively charged clouds pass over the Earth, electrons are chased away from the surface below the clouds, thus increasing the voltage between the clouds and ground.

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Note 14 --

It is actually amazing how accurate the descriptions from various sources are to a view directly up into a Birkeland current. The many heads of Typhon are the tubes of excited electrons. At the thunderbolts.info forum, poster Greycloud mentions that Plutarch in *Isis and Osiris* (AD 200):

"... in a throw-away comment, Plutarch mentions that according to Eudoxus, Typhon (Egyptian Set or Seth) had 56 angles and that Pythagoras assigns the number 56 to Typhon."

-- Apr 20, 2008 12:02 pm; in a thread "dating," which has since been removed.

I would have been sufficiently impressed by mention of the "many heads of Typhon." The 56 separate tubes is the normal count of strands of a massive Peratt plasma column, here seen as if at close quarters.

The battle of Marduk (Jupiter) and the dragon Tiamat -- in which Marduk drives a three-pronged spear into the mouth of the dragon -- as well as Indra and Vrtra, Zeus and Typhon, and any number of other pairs composed of the supreme God and a dragon with the body of a snake, all properly belong to another period -- the fall of the Absu in 2349 BC. The snake-like dragon in 2349 BC is the plasmoid from Venus.

The plasmoid appears again in (astronomical year) 685 BC. This will be discussed in a later chapter.

Velikovsky quotes a number of Roman and later authors and chronographers (at times as secondary sources) to the effect that the apparition was seen as a giant

red-globed comet. Pliny in the first century AD writes, "A terrible comet ... twisted like a coil ... [and] a ball of fire." The comet is generally known as Typhon, after the last pharaoh of the Middle Kingdom, Tau Timaeus, rendered as Typhon in Greek (Velikovsky). Manetho records that, in the time of Tutimaeus [Tau Timaeus], "a blast of God's displeasure" fell upon Egypt and ended the Middle Kingdom (Velikovsky). The end of the kingdom actually came slightly later when the Hyksos invaded the Delta, taking advantage of the widespread destruction in that region.

Since there are many similarities, the Typhon legend is easily confused with the Phaethon legend, where Phaethon, the son of Helios, the Sun, takes his father's chariot for an uncontrolled ride through the sky, burning up parts of the Earth. The ride of Phaethon happens in 685 BC, as I will relate in a later chapter. This is where the trident of Marduk belongs also.

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Note 15 --

It should be understood that only the outer layer of the plasmasphere is electrically active in the minor contacts described in the text. The outer layers of a plasmasphere (and the extended tube), called the double layer, are conducting surfaces. Major repulsive electric force interactions happen when the two planets can "see" each other within the combined plasmasphere.

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Note 16 --

Velikovskian investigators have always assumed that the "fallen sky," which, from various sources, lasted 20 or 40 years, was made up of dust from the tail of Venus. Thus there was some disappointment among Velikovskians that no record of "dust" was found in the Greenland ice cores at a location corresponding to 1500 BC. As I have stated, there was no dust in the edges of the tail of Venus (and certainly very little *within* the tubular form of the tail), and, as others also maintain, dust would, at any rate, have settled out in a few months. But nanometer soot from forest fires would not have settled out very soon. I refer the reader to the chapter "Tunguska and Chicxulub."

This is not to say that the whole of the ice core data is not muddled by many unjustified assumptions about formation of the Greenland glacier. Volcanic dust from the Santorini explosion of circa 1350 BC was at one time held to be

detected, but this was later repudiated. The lack of funds has greatly limited study.

On the other hand, both the Grand Canyon of Arizona and the Valles Marineris of Mars show what can happen with massive plasma lightning strikes. The Valles Marineris is 3000 miles (4800 km) long and five miles (8 km) deep. The material which used to be there has disappeared. The same is true for the Grand Canyon. The Grand Canyon is a mile deep in places. But there is no run-off of water-eroded soil to be found anywhere. Valles Marineris probably dates from 720 BC, due to a strike to Mars from Venus. The Valles Marineris scar has a large left-right symmetry, as would be expected with a massive lightning strike (so says Thornhill).

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Note 17 --

The "wanderings in the desert" were most likely a migration into the Arabian peninsula, towards Mecca. The Israelites were herders, and "wanderings" would not be unreasonable.

The years of darkness were real. They are also recounted in the Vedas. The Mesoamerican records specify a darkness happened twice. This would be the events of 2193 BC and 1492 BC. For one of those events, the cloud cover lasted 25 years.

For the Olmecs the period after 1492 BC was the start of history (and the start of the Haab calendar). When the skies lifted again, after a long period, it was celebrated as the creation event (or a re-creation event) with altars which show atlantes (the Gods of the four cardinal points) holding up a platform representing the lifted skies, or show a God in a niche below the table (recalled from 2349 BC). An altar from near San Lorenzo has the edges of the altar marked with the glyph for the word "cloud." The same altar design may be found at Chichen Itza, 2000 years later. The table is still used by the present Maya as part of a "centering" ceremony which celebrates the creation of the world.

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Note 18 --

This passage, suggested by Velikovsky, was for me one of the more convincing data points in his exposition. Moses heard the commandments of his God as a

cadence of repeating triple syllables -- in the groans of the seismic convulsions of the Earth.

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Note 19 --

It is amazing that the results of the literary analysis by Velikovsky, in *Worlds in Collision* (1950), closely matches the results which is expected from physical considerations.

What is almost certain (from later data) is that Venus did not change its orbital period by more than four days as the net result of the interactions, and that the orbit of Venus remained elliptical, although the eccentricity may have changed. The orbit of Venus did not circularize until after 670 BC.

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Note 20 --

The length and dates for the rule of the Hyksos are in total confusion. Manetho (AD 200) records 511 years. Scholars of the 19th-century have estimated 200 to 400 years. Traditionally the period extends from 1648 to 1539 BC, which incorporates a dating error of 150 years. Even today this period has not been sorted out. Egypt split into three divisions, the Delta region held by the Hyksos, a central region held by the pharaohs of Memphis, and another independent region south of Aswan, held by Nubians, who modeled their culture on the traditional Egyptian civilization.

Velikovsky suggested 400 years for the intermediate period, from after 1450 to 1040 BC. This has been followed up on, confirmed, and also adjusted, by numerous researchers, but dates are still contested by most archaeologists. See Velikovsky, unpublished documents, "World Fire" and "Hammurabi and the Revised Chronology" at [\[http://www.varchive.org\]](http://www.varchive.org)

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Note 21 --

Velikovsky makes note of the endless rotation of the names of the Gods, as follows:

"A new catastrophe caused by another member of the planetary family would easily raise it to the position of the supreme deity; on the other hand

the fidelity to the protective deity of the previous age would cause one or another tribe to remain faithful to the old cult; religions and gods are tenacious contents of the human soul and peoples do not part easily from them."

"Thus we see how the worship of Jupiter superseded that of Saturn; the worship of Venus (Minerva, Athena, Astarte, Baal) in many regions eclipsed the worship of Jupiter; and the advent of Mars and its participation in celestial wars brought new schisms into religious thinking and caused new religious wars. Thus the Greeks battled under the patronage of the planet Venus (Athena) whereas the Trojans battled under the protection of Mars (Ares); but Ares was also recognized as god by the Greeks and Athena as a goddess by the Trojans. Similarly the Toltecs, faithful to the cult of Quetzalcoatl, the planet Venus, warred and succumbed in the war against the Aztecs, the younger race that proclaimed Mars (Huitzilopochtli) as their god. The Romans regarded Mars as their protective deity but their main sacrarium was dedicated to Jupiter and Minerva (Athena). Egyptians also regarded Amun as their supreme deity and Ra was its other name. In another cult center of Egypt Osiris and Isis were worshipped as supreme gods; in early times they represented Saturn and Jupiter; at a later time Isis became synonymous with Astarte-Athena, the planet Venus."

"A few peoples through consecutive planetary ages kept fidelity to the ancient Kronos (Saturn), whose age was previous to that of Jupiter. Thus the Scythians were called Umman-Manda by the Chaldeans, and Manda is the name of Saturn. The Phoenicians regarded El-Saturn as their chief deity; Eusebius informs us that El, a name used also in the Bible as a word for God, was the name of Saturn."

-- Velikovsky, unpublished document, "The Birth of Monotheism" at [\[http://www.varchive.org\]](http://www.varchive.org)

Enn Kasak and Raul Veede, in "Understanding Planets In Ancient Mesopotamia," in *Folklore*, Vol. 16 (2001), write:

"The functions of different gods tended to vary by city states, but of the Great Seven [of the Sumerians], An was universally the god of heaven, Enlil the god of air and earth, and Enki the god of water and wisdom; less important were Utu the Sun god, Nanna the Moon god, Inanna the goddess of love and war, and Ninhursag, the mother of gods."

"The name and status of the main god depended on who had the power. In Sumerian times, the greatest god was An, whose son was Enki. In the Old Babylonian period, of course, the city god of Babylon, Marduk became the main god and was also to be son of Enki and grandson of An. As An was more like a 'deus otiosus,' Marduk as an acting god started to be identified with the acting main god Enlil, whose son, god of war Ninurta was identified with Marduk's son, multifunctional Nabu."

"Saturn is hard to interpret, as it is connected to Ninurta, but this leads us through Nabu straight to Mercury... . Sumerian Nanna and Akkadian Sin are the Moongod, Utu or Samas is the Sungod without a hint of doubt."

The status of Mercury (Nabu) as a God is curious from our perspective, since we see so little of Mercury. Mercury orbits close to the Sun and today only shows a few degrees above the horizon before sunrise or after sunset. It clearly suggests that Mercury was on a radically different orbit, and much more prominent, in the skies of antiquity.

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Note 22 --

There is a very large voltage difference between the Earth's crust and the ionosphere. The voltage difference can become extremely high even with small changes of elevation, and mountaineers especially have experienced severe shocks under adverse atmospheric conditions -- simply by reaching up to gain a hold on some rock surface.

At ground level the voltage difference amounts to about 600 volts in six feet (2 meters) of elevation. But any tall conducting structure takes the potential at ground level and inserts it into an elevation with a higher potential. Thus the voltage difference at the top of a tall structure is much greater with respect to the surroundings, often enough to ionize the air, especially at the tips of sharp spikes. This will be seen as Saint Elmo's fire.

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Note 23 --

I would not make the suggestion that material of one plasmasphere could be transferred to another in "brushing" each other while passing in space, if it were not for the fact that only *this* explains the sweet smells of the 8th and 7th century BC, noted throughout the world. The Olmecs call them "fragrances of

flowers." The fragrances were associated with close passages of Mercury.

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Note 24 --

It is not at all certain that Yahweh is to be equated with Venus. The planet Mercury is much more likely, with Jupiter even more so. Yahweh was defined in the exile era (563 to 483 BC), or the post-exile era, as a singular spiritual (unsubstantial) entity along the lines of Persian Mazdaism (which actually was an invocation of Saturn or Jupiter).

On the flaming bush, see Joel T. Klein, *Through the Name of God* (2001), which offers "burning bush" as a later mistranslation of an Egyptian word originally equivalent to Shamash.

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Note 25 --

Alfred de Grazia is an accomplished academic, and read everything ever written on Moses and the Exodus before writing *God's Fire* in 1983. I am using his text as a source because it reflects on the developing subjective consciousness of this period (which he would probably deny).

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Note 26 --

Aris M Hobeth, in *Moses in the Twelfth Dynasty Egyptian Literature* (2002), places Moses, and a dozen others Bible personalities from Exodus through *Numbers*, in the Egyptian 12th dynasty -- some as pharaohs, including Moses as Senusret III (the literary Sesostris), Aaron as the high priest of On, others in secondary roles. The compelling analysis is based on the clear parallels derived from a half dozen narratives extant from the 12th dynasty. The details between the Bible and the literature of the 12th dynasty is amazing and convincing. See Hobeth's site, [\[ArisMHobeth.com\]](http://ArisMHobeth.com).

Hobeth equates Moses with Senusret III. He suggests dates around 1500 BC. The 12th dynasty is traditionally dated to 1985 to 1795 BC, on the basis of a single Sothic date -- a literary reference to the rising of "Sothis" in the reign of Senusret III and retrocalculated to be in 1870 BC. It is not. The whole system of Sothic dating is bogus, and has today been abandoned, although it still held on to in textbooks.

Relocating the 12th dynasty to around 1500 BC has also been done by a number of other people: Immanuel Velikovsky, *Ages in Chaos* (1952), Bible apologists like Donovan A. Courville, *The Exodus Problem and Its Ramifications* (1971), and academics like Peter James, et alii, *Centuries of Darkness* (1991), and David Rohl, *A Test of Time* (1995).

Damien Mackey makes the same claims as Hobert with *Solomon And Sheba*, in *Chronology & Catastrophism Review* (1997), based on earlier work by Velikovsky, John Bimson, and others.

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Note 27 --

It is probably the presence of the Hyksos (or Mitanni) which kept the Israelites from advancing north into Canaan for 40 years. Josephus mentions the Philistines.

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Note 28 --

P. Warlow, in "Geomagnetic reversals?" *Journal of Physics* (1978), suggested an inversion of the Earth like the operation of a toy "Tippe Top" which moves the precession reaction torque (the gyroscopic reaction) to the upper portion of the top, making it look as if the initial spin had remained in place. This happens as the globe as it is inverting. This exchanges the east and west. Sun will then rise over the same western landmark of the horizon. If the rising Sun defines "east" then east and west have interchanged.

The Tippe Top concept is a totally erroneous concept simply invented to satisfy the requirement of seemingly exchanging east and west, something supported with many quotations by Velikovsky, none of which prove the point. See the Appendix "Polar Relocations" for details.

With Warlow's model the Earth would not upright again, or if it did, it would happen by some other catastrophe. For Warlow this suggests placing one catastrophe in 2300 BC (of which he knows no details) and another at the time of the Exodus. Not untypical of catastrophists like Warlow, he then equates one event with Typhon and the other with Phaethon.

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Note 29 --

There are Egyptian and Mesopotamian images of devices which look very similar to the description we have of the Ark of the Covenant.



[Image: An ark carried in a boat by Egyptians (ND). After de Grazia.]

In 2 Samuel 6:2 is a description of Yahweh, "... the ark of God, whose name is called by the name of the LORD of hosts that dwelleth between the cherubims." The God of the Israelites dwelt with them, in visible form.

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Note 30 --

De Grazia and a number of other people have suggested radiation poisoning as the source for the widespread "leprosy" of biblical times (as well as the barrenness of women and the falling out of hair mentioned by Ipuwer). It has been suggested that the Ark may have contained radioactive materials, and for this reason was returned to the Israelites after being captured by the Philistines, who got sick after approaching the Ark. However, UV and X-ray burns are more likely than radiation poisoning.

On the other hand, the interplanetary lightning strikes at the Great Lakes in circa 10,900 BC, left areas of lower Michigan radioactive. To attribute radioactivity to the *contents* of the Ark seems far-fetched.

Others have suggested that the "leprosy" of antiquity was a slow acting viral infection. Today it is known to be a bacterial infection.

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Note 31 --

The need for a ground plane which would be responsive to induction of positive charges was known long before the Middle Kingdom of Egypt. Many of the megalithic structures in Northern Europe, dating from 3400 to 3200 BC, are

surrounded with ditches and at times with wells backfilled with rock. These would act to collect and hold groundwater, thus providing a larger flat plane which could be "electrified" by induction from an overhead electric field. Even when dry, the ditch acts to increase the potential difference between the tops of the monuments and the ground plane. Certainly many of the locations of ancient sites were chosen for this reason, which is why we often find ancient megalithic monuments grouped together.

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Note 32 --

This quote by de Grazia relates to Jaynes's use of the traditionally accepted dating of the event of the battle at Troy to circa 1200 BC (attributable to a hasty comment by Herodotus) and the later writing of the *Iliad* to circa 700 BC. The Asiatic Greeks have disagreed with the early date of the war since 400 BC. (See also the endnotes to the chapter "The Tablets of Ammizaduga" on the dating question.) The late date of authorship of the *Iliad* is unquestionable. It may have been as late as 650 BC. But in that there is no indication of a "development" of Greek literature -- the *Iliad* bursts forth as a fully developed literary masterpiece after 700 BC -- it has always been assumed that it was preceded by a long tradition of oral poetry. It has never been considered that perhaps all previous literary efforts in mainland Greece and Greek Asia Minor were lost during worldwide catastrophes. Even Plato remarked on this.

Jaynes assumed that the *Iliad* represents the compositional efforts of a pre-conscious bard, and used the *Iliad* as a centerpiece in the analysis of a developing subjective consciousness. Jaynes thus had to establish a method of verbal transmission, ending with a last pre-conscious writer, Homer, 500 years later. Jaynes's suggestion is that the songs must have been transmitted by some trance-like mind-state among bards.

But this position is not needed. The theory of verbal transmission is partially based on the studies of Croatian bardic traditions in the late 19th century or early 20th, which in turn was applied to such epics as *Beowulf* and the *Iliad*, especially in terms of the formulaic sentence structure which grates on our sensibilities today but which is explained as a method of line completion within a required meter. But the idea of faithful verbal transmission in the Balkans has not held up on closer scrutiny.

After having read the *Iliad* a half dozen times, I seriously doubt the need for "trancelike states." I think the *Iliad* may have been purposely written in the style

of an ancient document. And it certainly captures that flavor and, at the same time, the epic is a masterpiece of political balance by placating the egos of both the Asiatic and the European Greeks. The great care taken with this, as with all aspects of the epic (such as with its internal time structure), would suit Jaynes's research equally well, and perhaps even better than if the *Iliad* were a totally genuine document.

It looks much more like the *Iliad* was written by a fully conscious poet sometime after 747 BC, about a war completed perhaps as much as 300 years earlier, or more likely as fictional. As a fiction there is no need to have a pre-conscious poet who transmits poetry orally. There are just too many "literary devices" in use with the *Iliad* to suggest anything different, including the fact, recognized long ago by the Greek editors of the *Iliad* in 600 and 500 BC, that Homer uses a "poetic diction" which does not match any spoken Greek dialect. He even makes up words as he needs them. There are some notable anachronisms in the poem and far too much heroics among its characters. Even so, I have no problem with the scope of Jaynes's analysis.

When you read how one war chief asks another for a favor with, "Considering the favors you have done me in the past, I thought I could ask for another," you realize that Homer is no rhyming automaton, but a fully subjectively conscious human.

See also the essay by Livio Stecchini, "Gyges and Homer," at [\[http://www.metrum.org\]](http://www.metrum.org), which places the writing close to 680 BC, and holds the *Iliad* as a fictional polemic poem written for the benefit of the Asiatic Greeks.

Talbott has suggested that not only is the *Iliad* a fiction, but that it recounts the war of the Gods in 3147 BC. In that there are no references to the solar nova event of 685 BC, it could be suggested that the *Iliad* was written before 685 BC (680 BC in Eastern Mediterranean chronology).

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Note 33 --

Hosea suggests that Moses was murdered. See Ernst Sellin, *Mose und seine Bedeutung fur die Israelitisch-Judische Religionsgeschichte* (1922), and commentary by de Grazia in Chapter 7 of *Gods' Fire*.

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Note 34 --

I copied the last line verbatim from de Grazia who transcribed it exactly from Jaynes.

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Note 35 --

I have noted the prevalence of Mercury shortly after this time (circa 1200 BC), as if Mercury again passed over the Earth's orbit on a regular basis (which had started in 1900 BC). Note the resemblance of the snake wound about a pole and the Caduceus of Mercury. Moses died below Mount Nebo, named after Mercury.

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Note 36 --

Earthquakes are often preceded by electric discharges from deep in the Earth. Piezoelectric voltages are generated by the distortion of quartz-bearing rock.

The breeched walls of Jericho have been excavated, and were originally dated to have fallen due to earthquakes circa 1300 BC. The date was later revised to match the "standard" chronology of Egypt, erroneously placing the date about 600 years earlier.

Velikovsky, in an unpublished document, writes:

"The conclusion reached by the excavator of the great-walled Jericho -- a Middle Bronze city, destroyed only a short time after the end of the Middle Kingdom -- is in perfect agreement with the timetable of 'Ages in Chaos': the Israelites arrived at the walls of Jericho only a single generation after the end of the Middle Kingdom in Egypt, still in the Middle Bronze (the beginning of the Hyksos occupation). There is complete agreement between the archaeological finds and the scriptural record."

The city was looted, razed, burnt to the ground, and left unoccupied for 600 years.

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Note 37 --

As a demonstration of the physical effect of a lightning strike, it is reported:

"In Fetlar, one of the Shetland Islands, a solid mass of rock 105 feet [35 meters] long, 10 feet [3 meters] broad, and in some places more than 4 feet [1.3 meters] high, was in an instant torn from its bed by lightning and broken into three large and several small fragments... . [One fragment], 28 feet [9 meters] long, 17 feet [6 meters] broad, and 5 feet [1.5 meter] in thickness, was hurled across a high point of rock to a distance of 50 yards [50 meters]. Another broken mass, about 40 feet [13 meters] long, was thrown still farther, but in the same direction, and quite into the sea."

-- A. W. Grabau, *Principles of Stratigraphy*, vol. I (1924)

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Note 38 --

Venus may have made electric contact with Earth repeatedly, as I have counted six times, but recorded as seven times by various people in antiquity. Velikovsky and others have presented evidence of additional 104-year cycles or "ages" in use worldwide. Archaeologists at one time suspected a 50- or 100-year cycle (this would be 52 and 104 "Tun" years) of purposeful destruction of Olmec ceremonial objects at La Venta (800 -- 400 BC) in Mesoamerica. Although it would be suggested that the "cycles" would be based on sightings of Venus when it seemed to almost reach Earth (which it did not), in fact the celebration of the "52-year" interval was a religious ceremony determined by the calendar, and, since 1442 BC, may have had little to do with the location of Venus in the skies. See the chapter "Olmec Alignments" for a discussion of Olmec La Venta.

In the *Chilam Balam* books of the Maya, the name for Venus suggests seven appearances (electric interactions) in prehistory. I can only locate six of them with certainty, so it is possible that the list of seven may have included an additional appearance either in 776 BC or in 685 BC.

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Note 39 --

This is also the period of the first appearance of the oracle inscriptions of the Shang dynasty in China. The *I Ching* is of a later date, since a textual analysis places it after 700 BC, although the trigrams probably date to before 3200 BC.

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Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to

radians or degrees by the divisors rad=.017+ and deg=57.2+; other functions are shown as f(); tan()=s()/c()
units: million == 1,000,000; billion == 1,000,000,000;
AU == 93,000,000 miles.



Chapter 23: Destruction by Mars.

\$Revision: 42.4 \$ (quet.php)

Contents of this chapter: [\[The Ragings of Mars\]](#) [\[The Winged Disk\]](#) [\[Calendar Reforms\]](#) [\[A Blast From Heaven\]](#) [\[The Death of Quetzalcoatl\]](#) [\[The Ballgame\]](#) [\[Endnotes\]](#)

In mainland Greece, of 150 cities noted before the 8th century BC, only 13 survived to 650 BC. The same scale of destruction was experienced in Anatolia, the Middle East, and Italy. The period of 800 BC to 600 BC also saw the largest overseas colonization by the Greeks, as well as the virtual depopulation of the Eastern Mediterranean region and parts of Europe. De Grazia in *The Iron Age of Mars* (2009) estimates that of a population of 200,000,000 before 800 BC, only 5 million survived. The earlier level would not again be reached until AD 1900. [\[note 1\]](#)

This decline in population presents a serious problem to a reconstruction of history, for not only were there few survivors to write history, but they would have been largely illiterate and uninterested, and even adverse to recording history. We only have the braggadocio records of the Assyrians, and the jeremiads of the prophets of Judah. There are some later (a century later) recollections by the Persians which reach back over the previous hundred years. We also have the accumulated clay tablets of the fortune-tellers and astrologers of Babylon, who concerned themselves more with celestial forecasting than actual history (and mostly dated to after 650 BC).

It is thus with difficulty that history between 800 BC and 650 BC is extracted from incomplete and unserviceable records. Even the books of the Biblical prophets were written or rewritten at later dates from older records, to be put in the service of prophecy and monotheism, and are often not at all helpful. Very little of the writing looks to be contemporaneous with the events.

What we do have are archaeological findings for Anatolia, Greece, and Italy, and eventually for a much broader range of territory. The record of destruction is absolutely astounding. Nothing before or after has equalled the catastrophic

devastation of the era of the 8th and 7th century BC. I'll fill in some details below.

This chapter will deal with the repeated close calls by Mars between 806 BC and 687 BC at 15-year intervals (closing in to within perhaps 30,000 miles, 50,000 km) accompanied by Mercury. It will deal also with the travels in 685 BC of Mercury high through the sky with Venus (which was especially noted by the ancients) and a blast from heaven which dimmed both Venus and Mercury.

The Ragings of Mars

Do not let the 15 year intervals presented above detract from the facts of the utter devastation that Mars caused in India, the Middle East, the Mediterranean, Central America, and in the lower United States. Because of the destruction of cities and the dispersal of people, but primarily because Mars appeared at 15-year intervals, we have virtually no written records. Velikovsky never managed to determine the complete scope of the events, except to suggest a 15-year interval. The only suggestion of an actual time span is from the sparse mentions in the Maya *Chilam Balam*, and even here the record has to be reconstructed from inferences. (Although the last event involving Venus, Mercury, and Jupiter is well dated.)

The appearances of Mars was like bad weather, and it took time before astrologers of the Middle East could even determine that the events repeated at regular intervals, and could be predicted. What is generally known for sure today is that, starting in 747 BC with an Earth shock, and for 60 years thereafter, Mars passed close to Earth five times -- very close. But the prophets of Israel had started their warnings long before 747 BC. From the suggestions incorporated in the *Chilam Balam* and less so from the archaeological records of destructions of citadels in the Middle East, it could be suggested that the first strike by Mars was in 806 BC. The complete period of the ragings of Mars thus probably extended over 120 years -- 806 BC to 687 BC. [\[note 2\]](#)

Alfred de Grazia, in *The Iron Age of Mars* (2009), writes:

"Planet-Mars is tightly bound in ancient peoples' minds with gods who are paramount warriors, destructive heroes, crushers of towns and armies, dispatchers of plagues, and depicted as red in color. Many, if not all, nations worshiped the planet-Mars and the god-Mars, under their national names for both of them. In Babylonia he was Nergal, in Mexico

Tezcatlipoca, for example. Hundreds of Mars identities around the world came into prominence at the same time."

Mars was seen on the day side of Earth as many of the descriptions make clear, although the night sky is invoked in some instances. Mars would have crossed Earth's orbit at an acute angle either in front of or behind Earth, moving in the spring from the night side to the day side, and in the opposite direction in the fall -- but 15 years later.

The *Popol Vuh*, in at least one instance where the celestial twins (Mars and Mercury) disappear into the night sky, identifies two stars and a nebula that they pass by (see a later chapter). This allows placing the event both at a seasonal date and at a location in the sky.

Entry of Mars at an angle into Earth's plasmasphere (at an angle and far removed from Earth proper) would have removed the shadow portion of Mars's plasmasphere due to the Sun and replaced it with a shadow due to the Earth's electric field, and thus pointing away from Earth. It seems likely that for this reason there were no repulsive forces between Mars and Earth in all instances except one. We have no records of any instances of a sudden Earth shock except in 747 BC. The difference in charge certainly was exhibited with the continuous electric arcing.

Thus it might be suggested that Mars missed any contact with Earth's plasmasphere entirely in 747 BC, and moved to the day side of Earth to cause then a sudden massive repulsive shock which changed Earth's orbital period by 5 days.

There are also records of solar eclipses during this period caused by Mars -- a phenomenon completely inexplicable to later researchers looking over Mesopotamian astronomical records. The fact that Mars was at times seen in the day sky, and at times must have blocked the Sun, might explain the obsession of Assyrian kings with eclipses after 747 BC, since it would be obvious that such eclipses were accompanied by wholesale destructions.

Prayers and pleadings to Mars proliferate in Mesopotamia and India during this period. The *Book of Amos* records the first major interaction with Mars as predictions. The *Book of Joel* (in the Bible) also records the threat of Mars. A troop of warriors travels with Mars, called Maruts in Vedic sources, the "Terrible Ones," carrying gleaming spears and throwing fire, lightning bolts, and bolides to Earth. *Joel*, of course, identifies them as the "hosts [that is, the army]

of the Lord." Joel also calls them Ariz, "Terrible Ones," the name for Mars adopted by the Greeks, Ares.

The Maruts are the companions of Mars, asteroids which had accompanied Mars since the time of the first dynasty of Egypt, when the Egyptians duly counted them as part of the herds of small and large cattle of Horus. They will also show up in the tales of Hercules as his stolen cattle or as the armies he raised for various exploits. [\[note 3\]](#)

In the Bible the "hordes" which accompany Mars could be equated to the various enormous groups of warriors supposedly slain in battles at that time. From Ussher:

- 957 BC: "Abijah and his army of 400,000 men, fought with Jeroboam and his army of 800,000 men. Because Abijah trusted in God, he obtained victory against Jeroboam. He killed 500,000 of Jeroboam's soldiers."
- 941 BC: "In the beginning of Asa's reign, Zerah the Ethiopian mobilised an innumerable army to invade the land of Judah. This force had 1,000,000 men... . Asa met this army with 300,000 men from the tribe of Judah and 280,000 from the tribe of Benjamin. He called on the name of the Lord and routed and slew that vast army and took much spoil from them."
- 741 BC: "Pekah killed 120,000 valiant men of Judah in one day. ... The Israelites also carried away captive from Judah and Jerusalem 200,000 women, boys and maids [who they released]."
- 710 BC: "The next morning there were found 185,000 dead men. After this Sennacherib shamefully broke camp and returned into his own land to rest at Nineveh."

All the above dates and the quoted text are from Bishop Ussher, *The Annals of The World*, Chapter 4, "The Fifth Age of the World." The size of these armies, even if half or three quarters were camp followers, is astounding. And they all die. (The World War II invasion of Normandy involved 176,000 troops, with a naval support of 196,000.)

This recalls the much earlier Egyptian counts of the Followers of Horus, or the contemporary (8th century BC) spear- and rock-throwing Maruts in the company of Indra (Mars) of the Vedas, or even, as pointed out by Isaiah, the attacks by fiery hot sand which entered through windows and under doors.

Greek legendary history holds the Dorian invasion of Greece to be the "return of the Heraclids," when the banished third-generation offspring of Hercules returned to lay claim to the Peloponneses. The dates are very uncertain (but 761 or 762 BC could be suggested). Thucydides dates the invasion to 80 years after the Trojan war, where the Trojan war was assumed to have happened as early as 1200 BC. The invaders included the Spartans, who at best can be dated as an organized community to about 750 BC. The two ruling families both trace their descent from Hercules (Mars) but, like all twin kings of antiquity, representing Mars and Mercury.

Except for these, there is no evidence of a "Dorian invasion." The Heraclids are the sons of Hercules which is Mars. They were seen in the sky, not on Earth.

All nations watched Mars during these years with great anxiety. Most notable among the destructive effects of these close passes are the frequency of earthquakes, due to gravitational and electric forces on the crust, but especially a moving electric arc which burned forests and lifted the material along with soil ahead of itself in a tornado the size of a hurricane. In an era of city walls, built as a measure against rampaging tribes, and most frequently built on hilltops, Mars becomes known as the "stormer of walls." The seven- to ten-foot cover of burnt matter and soil, which buried fortified hilltop citadels, far exceeds the amount ever deposited by any forest fires or volcanic eruptions (which is seldom more than a few inches).

Alfred de Grazia, in *The Disastrous Love Affair of Moon and Mars* (1984), notes both the imagined devastations by Mars and the archaeological record. He has reference to the event of 776 BC (the so-called 'ballgame'), but it probably more accurately reflects any of the events from 806 BC through 687 BC. De Grazia describes the destruction of Pylos, one of the destroyed locations, one of hundreds:

"Tidal waves wipe out nearly all coastal settlements (where perhaps 80% of the Greek-speaking population was contained in 800 B.C.). Chasms are opened; volcanoes are created and activated. Surface soils are ripped off by winds traveling at hundreds of miles per hour. Communities are obliterated or disrupted by showers of ash and debris, winds, water, fire, and famine."

At 35 degrees latitude, the Earth's surface would zip by an exterior planet at about 500 miles per hour (800 km per hr). At hilltop citadels the electric arc would pause, and the hurricane winds would drop the burnt soils and the ashes

of incinerated forests. This, in fact, is the strange specificity experienced by archaeology. De Grazia continues:

"The Palace [of Nestor at Pylos] was destroyed in a 'holocaust' which 'consumed everything that was inflammable within it, and even melted gold ornaments into lumps and drops of metal.' The flames melted brick and stone into 'a solid mass ... as hard as rock.' In one room two large pots were fused 'into a molten vitrified layer which ran over the whole floor.' Everything that a human invader might desire was reduced to shapelessness. Stone was burned into lime. No human hands and hand-set fires could have wreaked such ruin."

He follows this with an exploration of Greek society in mainland Greece and Asia Minor, based partially on the content of the *Iliad* and the *Odyssey*. His analysis of Homer is without a doubt the most cogent I have encountered. The reader should be aware that, along with many others, I hold that the "dark ages" of Greece do not exist. Mycenaean Greece came to an end in 806 BC, not at the start of the 400-year gap of the Greek "dark ages" following 1200 BC: [\[note 4\]](#)

"The Homeric heroes, Odysseus and Achilles among them, typified the bands of survivors of the extensive Mycenaean civilization that was largely destroyed in the catastrophic interventions of the planets Mars and Venus in the Earth-Moon system in the 8th century. The plots of the Iliad and Odyssey, despite 2700 years of trying to make something else of them, clearly point to the skies as the source of the disruptive and awful events that produced the crazed heroes of the dark times. Western civilization has treasured and imitated the posturings of these mad warriors, hardly ever realizing what they were and how the docile mind of later generations would be affected when this madness was presented to it as normality and for inspiration."

Greece and Anatolia represented the epicenter of the repeated destructive close passes of Mars after 806 BC. Although Venus was seen near Earth in 776 BC, Venus was not involved in the destructions. De Grazia continues as follows. I have abbreviated the text and added in some of his quoted sources.

"The heroes boasted in the names of their parents, some of their grandfathers, and usually stopped at this point; some lapsed into claims of divine forebears in the second generation. ... The absence of 'family trees' among self-assertive 'nobles' raises doubts that they either knew their ancestors or, if they did, could claim any distinction on their behalf. ... This

is exceedingly strange. It is not at all like 'primitive peoples' whose lives are bound into communities of blood served by totems. Nor like a bureaucratic society."

"The warriors stayed away from their 'homes' so long that we could question whether they had any. They remind us of Vandals and Vikings who left home never to return. Of all of Ithaca's warriors, only Odysseus ever reached home. Odysseus played the pirate -- looting, killing, raping. Marauding was frequent, if not from one's neighbors then from pirates and foreign warriors."

"It was a society where every man's hand was raised against his neighbor. ... 'The bearing of arms, particularly lance and sword, on all solemn occasions of civil life, was the distinguishing feature which, more than any other, marked the separation of classes in Homer's time.' [Emile Mireaux Les Poems Homériques et l'Histoire Grecque (1948)]"

"In battle one encounters a frenzied behavior whereby fear is whipped up in order to gain courage. Eliade's words apply to the heroes: 'The frenzied berserker, ferocious warriors, realized precisely the state of sacred fury ... of the primordial world.' [Mircea Eliade Cosmos & History: The Myth of The Eternal Return (1959)]"

"A frank, hollow, extreme braggadocio characterized the best and the worst of the fighters. The glorification of destructiveness seems interminable. ... There is a pervading sense of splendors of the past being gone and citations of armies, cities, and wealth appear to be grossly exaggerated. This pretentiousness is not that of nobles, [but] of a people who had lost something they once knew, did not own, but had given them their character."

"They depended upon the seas but were bad sailors. There was no class of specialized sailors. Everyone was a 'sailor.' Maritime ventures were not materially distinguishable from piratical excursions."

"They were meat-eaters: cattle, sheep, and wild game, animals of the uplands. 'For Homer fish is a detestable food, while Hesiod does not even deign to mention it. Never is fish eaten at the Homeric repasts.' [Mireaux]"

"Gift-giving was often a spectacular affair. ... The things given seem often to be for re-giving, to be untouched and unused, even homely objects like linens, and the metal gifts seem all too frequently to have semidivine or

divine 'makers' which, as false pedigrees conceal humble origins, may have concealed their origins in loot and theft. Their description, too, conveys an awesomeness, as if they were not familiar objects to the childhoods of the gift exchangers. They are described as pirates would speak of their misunderstood loot of pots and laces."

"Chariots are used, not as battle-wagons, but to convey warriors to places where they would descend and fight. Their use was partly forgotten or had not been familiar to the types who owned them."

"The Greeks of Homer, to conclude, did not come as an invasion from afar. They consisted of all kinds of Greeks. They were survivors, largely from the rural areas and the interior high lands. From personal experience and hearsay, they knew of the centers of their societies that had been destroyed. They often lacked kith and kin; they lacked communal security; they lacked law and order; they lacked education; they trembled upon the trembling earth."

The analysis by Alfred de Grazia covers only Homer, and the collapse of the Mycenaean Civilization. De Grazia thus places the composition of the *Iliad* and the *Odyssey* after 650 BC.

"For a grandly disciplined, informed, and stylized poet like Homer to write so sympathetically of his subjects, he had to be of their age, and to be of their age required that their age be the eighth century." [\[note 5\]](#)

But despite the destruction and dislocations, the Olympic Games continued. The attacks of Mars were at 15-year intervals, and not always at the same locations. Attempts at rebuilding destroyed cities (as for example, at Troy) continued, although this was very infrequent.

If Homer was "of their age," as de Grazia suggested, then the poetic response would have been to conditions localized and particular to himself -- the attacks by Mars would have been experienced in his lifetime. De Grazia suggests a composition date of 650 BC.

From the terse information of the Maya *Chilam Balam* we know there were five close passes by Mars between 747 BC and 687 BC (thus at 15-year intervals). But, from the same source, we know that there were a total of nine contacts, thus there were an additional four passes before 747 BC, starting in about 806 BC

also at approximately 15-year intervals. Some locations likely were only touched once.

The condition of a gigantic arc traveling across the surface of the Earth would have been distinctly localized, although the fall of airborne debris could have covered large areas, and the earthquakes would have spread even further away from the path of destruction. What is peculiar, but not unexpected, is that in some instances the same locations were struck repeatedly.

Only after rereading the essay by Ralph Juergens's "Moon and Mars" did I realize that Mars would most likely have approached to within the plasmasphere of Earth, thus within a distance of 20 Earth diameters -- 160,000 miles (250,000 km). Juergens suggests a relatively close distance between Mars and the Moon for their interaction. Patten and Windsor suggest 27,000 miles for the closest approach to Earth (but based on damage due to gravitational attraction). Maya iconography suggests a lightning tail extending from Mars by 4 or 5 diameters - - thus a distance of 21,000 miles (34,000 km) from Mars to the surface of Earth. [\[note 6\]](#)

At a surface-to-surface distance of 20,000 to 30,000 miles, Mars would have lifted the Earth's crust below its path, creating (as Patten and Windsor claim) ridges of mountains. The Earth crust which was lifted would not have subsided back entirely, since the land area of the Earth is only material floating on a heavier substrate, and this last would have filled the hollow left below the lifted mountain ridges. Mars could have remained in place laterally next to Earth perhaps for some days, since in crossing Earth's orbit it would be traveling at nearly the same speed as the Earth. However, since the Earth rotates, the location below Mars at a 30- to 40-degrees latitude would have moved past at some 500 miles per hour (800 km per hr). [\[note 7\]](#)

Patten and Windsor suggest any number of curved north-south mountain ranges as being due to the lifting forces of Mars, including the Andes and Rockies. I am not in agreement with a north-south path for Mars, since, as a planet orbiting the Sun, it would only approach Earth laterally, although this could be at any latitude, and would be nearly the same latitude each time. I also disagree with the Patten and Windsor notion of "crescent shaped" mountain ridges. Any ridges which were formed in this process of a close approach would have been entirely parallel to the Earth's latitudinal lines. That also means that Mars was seen in a side view, that is, with the rotational axis of Mars directed more or less parallel to the Earth's axis, and seen as rotating.

All indications from references in antiquity is that Mars represented a distended and distorted image -- perhaps wildly flailing like a bat, which is how some Mesoamerican sculptures represent Mars. In Europe, Asia, and China, Mars is represented as a dog, a wolf, a sword, a gruesome giant, and a diseased person. The shapes of the imagery are likely the Martian dust extending into the Earth's magnetosphere. The diseased look probably derives from the pockmarked lower hemisphere. Mars is frequently noted also for its bloodstains and fire. The fire is sand and dust brought to flaming incandescence at the Earth by the arc between Mars and Earth.

The center of the Aztec "Calendar Stone" shows a face with a tongue lolling out. This is Mars. The same tongue appears on images of the Gorgon of Greece, the dreadful snake-haired woman whose gaze would turn to stone anyone who looked (although this image date from 10,000 years earlier). Add together the snakes, the tongue, the Mesoamerican mention of Mars smoking a cigar (only seen as such by cigar-smoking Olmecs), or with a smoking celt lodged in his forehead, and you end up with a varied and frightening apparition flying by in the skies overhead. In Mesoamerica Mars is also described as carrying a smoking mirror on its forehead, which clearly is the northern ocean (or the remnant of the included deeper ocean, Deuteronilus) steaming water into space. The 13th century AD Icelandic *Younger Edda* also recounts Thor (who is Mars) with an axe lodged in his head after an encounter:

"Thor went home to Thrudvang, but the flint-stone still stuck fast in his head."

In passing over Earth's surface Mars would have induced an opposite charge below it. The result would have been a continuous lightning strike in an attempt at charge equalization. From the evidence of fire, the melting of metals, and the calcination of building stone, as at Troy (Hisarlik), Pylos, and any number of other places, it would seem likely that Earth was the anode for the lightning strikes.

This is exactly how lightning occurs under "normal" conditions today: negatively charged clouds chase away electrons at the ground below the clouds, resulting in a higher potential difference, which leads to lightning strikes. And like a "normal" lightning strike, the Earth's surface would have been the anode in the strike.

But the passage of Mars is also (or especially) noted for fire, and flames of extreme temperature. An electric arc would certainly qualify, but as likely, or

more likely, it was the dust ionized and ejected from the arc contact point -- burning sands, as Isaiah at one point suggests. Disassociated silicate dust, generated at Earth's surface and ionized as cations.

At Mars the plasma stream was possibly as wide as the planet -- 4000 miles (6400 km) diameter. This is likely the dimension of the limited plasmasphere of Mars, a condition resulting from lacking a magnetic field and an atmosphere. Within the plasmasphere of Earth, Mars would only have sported a limited plasmasphere, with a double layer perhaps a hundred miles above the surface, and constituted entirely of ferrous and ferric cations (Fe^{2+} , Fe^{3+}) plus the requisite electrons as the negative charges. At the Earth's surface the stream of plasma would concentrate to a much smaller dimension, possibly only tens of miles wide -- and in arc mode. [\[note 8\]](#)

The lightning strikes of the 8th and 7th centuries BC traveled west across the surface of the Earth (because Earth rotates to the east). The lightning strikes may have ignited, extinguished, and restarted numerous times, preferring high ground to land on. The lightning bolts must have been enormous and mostly continuous, or might have traveled in groups. They could probably be seen coming from over the far horizon, for in a number of instances we have evidence of people evacuating hilltop locations only minutes before being struck. At Pylos we have written records (clay tablet) of "watchers" posted at the shoreline. To no effect: Pylos was utterly destroyed.

The arc would have resulted in hurricane level forces which tore apart city walls and buildings. As a continuous arc, the bolts would have left behind a path of incinerated trees and grasses and upturned soil. But the arc would have been surrounded by a circular magnetic field which would lift up most of the debris and ashes and send it swirling up. This is how a tornado operates. Tons of loose soil and ashes would have been lifted into the air. The lightning bolt would linger or slow at a hilltop citadel rather than increase its resistive conduction path in leaving a hill. If the bolt stopped or extinguished on a hilltop, the suspended material would have been dropped. That is how Hisarlik got covered in a four- to six-foot layers of burned material.

If the lightning bolt was tens of miles across, the flaming sand would have spread horizontally from its base to a width of perhaps a hundred miles (160 km). Michael Steinbacher has reported that in the south western United States, at about 30 degrees latitude, there are gullies running up mountain slopes where the tops have been metamorphized -- altered physically and chemically by heat.

It is clear that if flames of ionized sand were forced up these gullies they would concentrate to a greater temperature where the width of the gully decreased. Dennis Cox has made note of top ridges of mountains in northern Mexico which have been melted, and similar metamorphic damage in Texas and Colorado. Let me quote Cox from [<http://sites.google.com/site/dragonstormproject/>):

"There are tens of thousands of square miles of assorted ejecta, and breccias, and of rivers of melt, and pyroclastic materials in Northern Mexico. All in pristine, unweathered condition like they only happened yesterday. And if you follow those materials upstream back to their respective sources you find no volcanoes, and no craters, only bare patches of smoothly melted stone. Or miles-wide, irregularly shaped melt basins, or strangely shaped denuded mountains with all traces of alluvium blown away. And which, sometimes, in their undulating lines, and angular scale-shaped ridges, look for all the world like the spine of a dragon sleeping in the earth."

Cox assigns the causes to meteors, and thus talks of objects cast down from the skies. Close enough for identical effects. He continues:

"... almost all of the object's kinetic energy gets translated to heat. The heat hits the ground in a supersonic, hyperthermal downdraft of perhaps millions of degrees. Most of the time even the detonation shock wave itself gets transformed into the heat. But here is no missing energy. And it doesn't 'dissipate harmlessly' in the atmosphere. The mountain is still history; it just very quickly, and violently, melts and goes away. Think about a gust of wind so hot that it instantly makes granite flow like water, and is just another gust in a turbulent storm. Then realize it's not imaginary. Such things have happened in the recent past. There are mountain tops at 13,000 feet (4300 meters) elevation in the Rocky Mountains of Colorado, their glacial ridges melted, blasted, and blown over the ridge top in runnels of melt, like wax on the sides of a candle. And recent enough that the blast melt materials have never been subjected to the grinding action of a glacier. Or mountains in Eastern Texas softened and tossed around like waves in an angry sea."

Mars came close enough to Earth to have its two peculiar satellites observed and described. Both are very small and they circle Mars on extremely tight orbits. To Homer they are Ares's dogs of war, Deimos and Phobos -- Fear and Panic -- rushing madly about his chariot. Hesiod says they are the horses of his chariot.

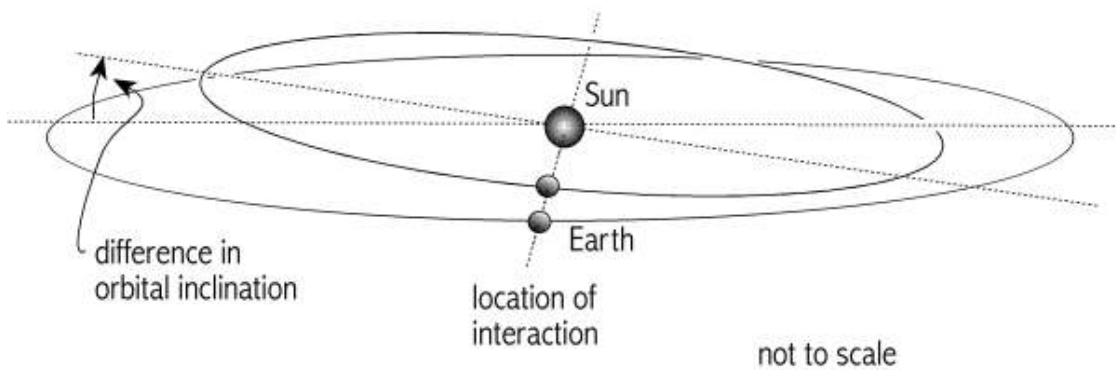
Dean Swift describes the satellites of Mars quite accurately in *Gulliver's Travels* in 1726, apparently on the basis of sources from antiquity, for they are only discovered by telescope one hundred and fifty years after its publication. [\[note 9\]](#)

In the *Iliad*, Ares, "the bloodied stormer of walls," always loses. Yet a number of belligerent nations take Mars as their primary God. Mars is the chief God of Rome. Their calendar year starts with the month of March in his honor and the founding of Rome is dated to the middle years of the eighth century BC -- coincident with a major disturbance of Earth by Mars in 747 BC which altered the length of the year. The Cimmerians and Scythians, Eastern European steppe peoples, also take Mars as their chief god and start destructive raiding expeditions into Anatolia in the 8th century BC. In the middle of the 8th century BC, coinciding with the return of Mars, Assyria, a small nation in Northern Mesopotamia, models its army after Mars's "horse mounted" hordes, and with similar tactics of speed and utter destruction, expands its conquests over a region from the Persian Gulf to the Mediterranean and to Aswan in Egypt.

The Aztec's chief god is Huitzilopochtli, "destroyer of cities and killer of people," and the Aztecs proceed (at a much later date) to terrorize the other nations of Mexico. Huitzilopochtli is Mars. (There are other Mesoamerican gods associated with Mars, such as the "flayed god" and the "scarfaced god.") [\[note 10\]](#)

Mars caused a disturbance of the Earth's orbit on February 26th, 747 BC. A second significant disturbance happened in 686 BC, on March 23 (some catastrophists suggest 702 or 701 BC). But this second shock was due to Mercury, not Mars. Subsequent events verify this notion. [\[note 11\]](#)

The events of 747 BC and 686 BC stand out, for the Earth experienced a seismic shock and the axis of the Earth was disturbed. During the gyroscopic reaction which swung the axis through a loop, the day was temporarily lengthened or shortened. In the *Iliad*, Hera sends the Sun unwillingly into the ocean, that is, she is shortening the day. In the *Odyssey*, Athena holds back the dawn at the edge of the ocean, thus lengthening the night. [\[note 12\]](#)



Two Planets in line with the Sun

[Image: Two planets in line with the Sun. When the inner planet's plasmasphere tail, directed away from the Sun, intersects the leading edge of the other planet's plasmasphere there will be an electric interaction. Illustration by J. Cook.]

The reaction to having the plasmaspheres of two planets touch would be a sudden experience of each other's electric fields. This would result in an instantaneous repulsive force -- an Earth shock. As the planets would both move away from each other (in the direction radial with the Sun), the force would decrease, and stop as the planet with the larger negative charge would induce an opposing charge in the facing hemisphere of the second planet. Since this involves the movement of electrons through the crust or atmosphere, it would take some time, perhaps minutes, or even only seconds. The increased difference in charge between the planets would result in arcing from one to the other in an attempt to achieve charge equalization. [\[note 13\]](#)

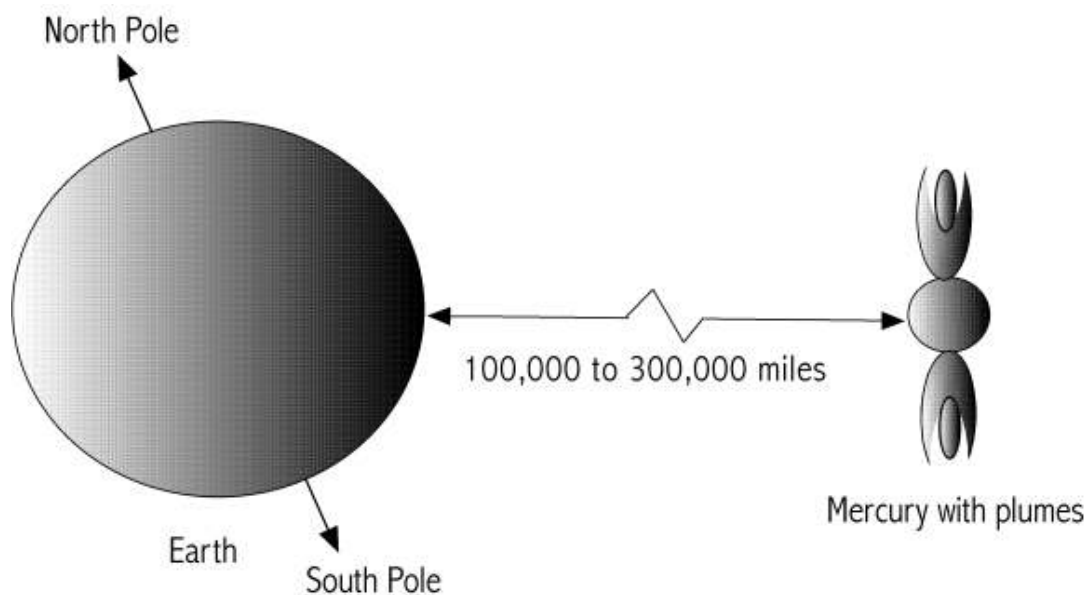
Because of the initial repulsive electric force, the crust would be depressed over a large area, resulting in an uplift at the margins. As the Earth rotated, the center of the compressive forces would rotate toward the west or southwest but would diminish very rapidly with the change of the induced charge to an opposite value.

The shock would be transmitted to all of the globe of the Earth, and both move the Earth in space, and, if the center of the impact was off-center to the Earth's equator, tilt the rotational axis. A gyroscopic reaction torque would result if the Earth's axis tilted -- a second twist which would attempt to bring the Earth's axis back to its original position. The Earth's crust might react to the initial shock for a long time. Mesopotamian records indicate earthquakes on an almost daily

basis during these two centuries and, even four hundred years later, Rome still records over 50 earthquakes per year. (See Appendix B, "Celestial Mechanics" for the mechanics of the interactions.)

The Winged Disk

During this period especially, from 806 BC and continuing a thousand years, we run into a curious iconography in Egypt and the rest of the Eastern Mediterranean: the winged disk. Actually, the symbol of a disk with wings left and right can be found on all continents. In Egypt we can date its first appearance as early as the Old Kingdom, and elsewhere in the Eastern Mediterranean from about 2000 BC. I had initially thought that this might have been a representation of Saturn at the north pole, but more likely it represented the planet Mercury.



[Image: Winged Disk, view from an equatorial perspective; illustration by J. Cook.]

Velikovsky and other have pointed out that Mercury has a very long history of providing the names of kings. The veneration of Mercury became prominent, for example, around 2000 BC, and again in the 8th and 7th century BC. The Turin papyrus claims a longer life for Mercury than any other planet, dating it to the nova event of Saturn in 4077 BC.

Mercury, I have noted, would have accompanied Mars on its excursions near Earth. Thus Mercury first showed up for 300 years starting in 3067 BC, then for

an equal period starting in 1936 BC, and last for a 120 year period starting in 806 BC. In between these times Mars and Mercury did not cross Earth's orbit anywhere near Earth for a span of more than 800 years. The orbits of Mars and Mercury would have precessed away from Earth's orbit during these times.

Mercury had a magnetic field and an atmosphere, and therefore had plasma plumes at its poles. These would have pointed north and south as Earth passed Mercury, and likely would have been in constant motion. As the Earth turned toward the east, Mercury would have been seen traveling west like a flapping bird.

Calendar Reforms

After the Earth shock of 747 BC, the year lengthened by five days, six hours, and 20 minutes to become 365.24 days -- nominally a change of 5 and 1/4 days. Calendar reforms were instituted worldwide, some in 747 BC but a few much later. Egypt attempts an additional correction to the calendar in 239 BC when the priests issue a decree which added one day to the civil calendar every four years. [\[note 14\]](#)

"... that the case shall not occur, that all the Egyptian festivals, now celebrated in winter, shall not be celebrated some time or other in summer, on account of the precession of the rising of the Divine Sothis by one day in the course of 4 years."

-- *Canopus Decree*, 239 BC, found at Tanis.

However, the previous Egyptian Venus calendar, based on the heliacal rising of Venus (Sothis in this case) every 8 years, remained in use until Julius Caesar's calendar was introduced 200 years later under Roman occupation. [\[note 15\]](#)

Between 2193 and 1492 BC there probably were ten lunar months of about 28 days in the year. Shang dynasty oracle records indicate months of 27 and 28 days. I have used a year of 270 or 280 days for this earlier period, which I think it was probably 273 days. This is reason enough why Shang records use both 27-day months and 28-day months.

In the following era, from 1492 BC to 747 BC, the year was 360 days, and the Moon on an orbit of 30 days. Both of these periods are well established. Many people, however, kept to the ten month year of the previous era, and made correction in a number of ways.

When, after 747 BC, the period of the Moon (the month) was no longer a whole-number interval of the year, the previous religious feast days started to wander around the year, and efforts were made throughout the world to rectify this. Here is a list of how the ancients took notice of the new celestial order of 365 and one-quarter days:

- On February 26, 747 BC, Nabonassar, king of Babylon, introduces a new calendar and an era called "the Era of Nabonassar." This dating schema is used to start compiling a yearly account of activities called the *Babylonian Chronicle*. Ptolemy (circa AD 150) and later astronomers would continue to use this astronomical record into the 15th century AD. Ptolemy also published a 900-year list of Babylonian kings up to his time using the *Babylonian Chronicle*. [\[note 16\]](#)
- Ptolemy uses the dates derived from the *Babylonian Chronicle* for a compilation of lunar eclipses (based on records obtained by Alexander in 331 BC from the Chaldeans), and marks 747 BC as the starting year of the collection, with the first eclipse in 721 BC. It is not certain if earlier records existed, but before 747 the skies were different, and earlier records would be invalid. China starts a record of eclipses at about the same time. [\[note 17\]](#)
- In the previous period, 1492 BC to 747 BC, the Earth year was 360 days and there were 12 lunar months of 30 days. When the number of lunar months changed to slightly more than 12 after 747 BC, a considerable number of people in the world retained the 12-month lunar calendar of the previous era, which ran about 11 days short of a full year, and made adjustments by periodically repeating one of the months. Some of these calendars have lasted into the 20th century AD. [\[note 18\]](#)
- The founding of Rome is dated to 747 BC, the year of the major disturbance of Earth by Mars. Probably long before 747 BC Rome had added two months (January and February) to their original ten-month lunar calendar (dating from before 1492 BC) and set all the months to 30 days, corresponding to the 30-day lunar month of the then-current era. (King Numa, who supposedly arranged this, is a fiction, and all the early records of Rome were destroyed by the Celts.) With the changes of 747 BC, the solution for the Romans was to end the year on February 28th (starting the year on March 1, the month of Mars), abandon lunar months in favor of calendar months, and distribute the extra days of the year equally among the remaining 30-day months. The change to starting the year on January 1 happened 700 years later after Julius Caesar's calendar reform of 40 BC.

The appointment to the office of Consul already started on January 1 a hundred years earlier. [\[note 19\]](#)

- An interval of 4 years, called an "Olympiad" had become the standard of chronology among the Greeks. The Olympiads were counted from the first Olympic Games in 772 BC (four years after the so-called 'ballgame' of 776 BC; see below). The four-year cycle used for the Olympiads is actually based on the coincidence of the synodic periods of Venus and Earth. Five complete orbits of Venus (as seen from Earth) are equal to eight complete orbits of Earth (at that time). At the end of eight Earth years Venus would rise again in the east against the same background stars, and of course on exactly the same calendar day as eight Earth years earlier. Both the convenient halfway point of four-years and the full eight-year cycle of the "Venus calendar" were observed in Greece, Egypt, Mesoamerica, and South America. With the change of 747 BC, the four-year interval fell one day behind each Olympiad. [\[note 20\]](#)
- Five days were added to the Mesoamerican calendar of 360 days, before the end of 747 BC, and were known as "days of nothing" (actually the "Sleep of the Year"). The same addition to calendars happened in almost every nation around the world, from Peru to Rome, and also to the Egyptian "civil" calendar. The Peruvian calendar included a leap day every four years to account for the quarter day left over at the end of the year. The Egyptian and Mesoamerican calendars did not account for the extra 1/4 day. [\[note 21\]](#)
- The "Long Count" was initiated by the Olmecs on February 28, 747 BC, with the count of double-decades, years, months, and days all set to zero. The "years" are 360-day years (18 "months") where the "month" is 20 days long. A larger measure, the Baktun, consisting of "400-year intervals," was set initially at 6. This is "6.0.0.0.0" in Long Count notation; see "The Maya Calendar" for details. The Long Count continued to be used by the Maya until AD 900. [\[note 22\]](#)
- The Maya considered that all pre-history happened in a Katun named "11-Ahau," which is named after the name of its last day. In the *Chilam Balam* there are a number of lists of events which always start with Katun 11-Ahau. Significantly, a Katun 11-Ahau ended on February 28th, 747 BC (Gregorian), when the Long Count calendar was started. The concept of assigning all prior history to Katun 11-Ahau may have its origin with this start of the Long Count. Katuns were named and likely were counted prior to this date. [\[note 23\]](#)
- The contemporary Maya of Chiapas, Mexico, still retain the use of the Haab calendar of remote antiquity, and start the 5 intercalated days (the

five extra days added to the 360-day year) on February 26 of our calendar. The year thus ends after February 26.

- The Romans in effect did the same thing with the pre-Julian calendar, ending the year in mid-February, but used a 365-day year: *"February was split into two parts, each with an odd number of days. The first part ended with the 'Terminalia' on the 23rd, which was considered the end of the religious year; the five remaining days formed the second part."* -- Wikipedia
- Tedlock reports that among the Quiche Maya of Guatemala the arrival of a new solar year is celebrated on February 25th, two days early from the Chiapas calendar.
- February 26th, the day of the disturbance of 747 BC, was celebrated as the start of the year (New Year's day) among the Aztecs at the time of Cortez. [\[note 24\]](#)
- At about this time, China declares that there are now 365.25 "degrees" in a circle. We do not know for certain when this practice started, since all books were burned in 213 BC. But it was certainly in use by the first or second century BC. It did not turn out to be convenient in geometry, but worked fine for celestial navigation on the seas. It was still in use in the 15th century AD.

Before 747 BC there had been 12 lunar months of 30 days during a year of 360 days. Since, during this period, an exact multiple of lunar months coincided with the solar year, lunar calendars were in use universally to govern the dates when religious observations were to be held, but many of these counted ten months to the year as their calendars had before 1492 BC. The phases of the Moon would represent a very visible public calendar, which everyone could understand.

The change to a new year of an odd number of days and a fractional day left over, and with a month no longer composed of an even fraction of the year, brought religious observances into total confusion. Attempts at corrections were made worldwide, resulting in many very complex calendars. All of these reforms we are aware of are obvious attempts to bring a lunar religious calendar into conformity with a new solar year, because following a strict lunar calendar during the new era would continuously displace all celebrations by many days over the year.

It should be noted that there is worldwide disagreement on which day constituted the start of the new era. As Hera sent the Sun into the ocean, shortening the day in the Mediterranean region, the Indians of Mesoamerica

experience a night which lasted four nights -- thus equal to two full days. Just as in the Mediterranean region we have the Era of Nabonassar starting on February 26th (after nightfall) and the Roman calendar starting after February 28th (the changes to new calendars were independently arrived at), so in Mesoamerica we have a similar disagreement over when the new era started.

In the case of Mesoamerica, the question of dates has become an issue among scholars, and deals with the retrocalculated initial date of the Maya (Olmec) Long Count. John E. Thompson first suggested in 1927 that the Maya Long Count of days starts on August 13, 3114 BC. In 1935 Thompson revised his calculation to August 11, validating the opinion of other scholars who had arrived at a date of August 11, 3114 BC.

This last date (the "August 11" starting date correlation) has become the accepted archaeological standard and is generally used today, although any number of researchers think that the date of August 13, 3114 BC, is more likely to be correct, because a calendar based on August 13 correctly dates many known recorded eclipses. A calendar based on August 11, however, is still used by some people in Mexico and Guatemala. [\[note 25\]](#)

There have been suggestions that the Maya made a two-day correction at some time in the past, but this assumes an absolute and uniform use of the calendar since remote antiquity. Considering the widespread adoption of the Olmec religious practices among the diverse tribes of Southern Mexico, the Yucatan, and Guatemala, as well as the universal use of the (now) 4300-year old Tzolkin calendar, it can be assumed that in 747 BC, when the Long Count was devised, there were some diverse regional opinions on the concept of where one era ended and another started, as well as questions about the existence ("completion") of two days which had not been seen in progress.

A Blast From Heaven

Another strange incident at the time of the last disturbance (the second Earth shock in this era) was widely known in the Middle East. In 687 (or 686) BC the Assyrian army of Sennacherib, on its way to quell a revolt in Egypt, camps some distance from Jerusalem and demands its capitulation on threat of a siege. The prophet Isaiah urges Hezekiah, the king of Jerusalem, to resist, telling him that Sennacherib's army would never arrive. Apparently Sennacherib had been similarly warned by his advisors. [\[note 26\]](#)

"The very same night God sent his angel to their camp. He destroyed every man of valour, every commander, and chief man in the Assyrian army. The next morning there were found 185,000 dead men. After this Sennacherib shamefully broke camp and returned into his own land to rest at Nineveh. Isaiah 37:36-38 2-Kings 19:35-37 2-Chronicles 32:21 All this was foretold by the prophet. Isaiah 38:1-22 31:8,9"

-- paraphrased by Bishop Ussher

Since antiquity there has been endless speculation as to what really happened, starting with Herodotus (fifth century BC), who attributes it to mice. Josephus (first century AD), along with modern historians, suggested a plague. But Biblical and Egyptian sources plainly state that it was *Ignis Coelis* -- "a blast of fire from the heavens." Such would be one of the effects of an electric interaction with another planet. [\[note 27\]](#)

There are two independent records of this event from China. The following is quoted from the *Bamboo Books*:

In the tenth year of the Emperor Kwei, "... the five planets went out of their course. In the night, stars fell like rain. The earth shook."

-- *Annals of the Bamboo Books*

The *Bamboo Books* were found in China in a grave in AD 279. The *Spring and Autumn Annals*, compiled for the state of Lu by Confucius and completed about 480 BC, reads almost identically, but does not recognize the Earth shock.

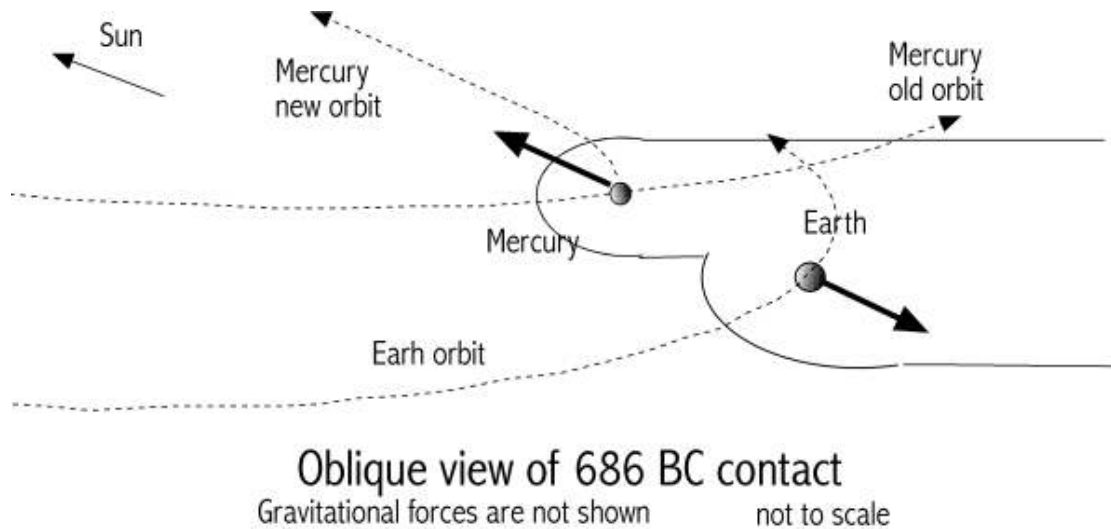
"In the seventh year of the Duke [Chwang] ... In summer, in the fourth month, on Sin-maou, at night, the regular stars were not visible. At midnight, there was a fall of stars like rain."

-- James Legge, translator, *The Ch'un Ts'ew and The Tso Chuen* (1872)

The seventh year of the Duke Chwang of Lu is identified as 686 BC by Legge. The quote from the *Bamboo Books* lists the date (-687) in astronomical notation, which is equivalent to 686 BC, Julian. [\[note 28\]](#)

These terse Chinese historical notes, which have been dated to March 23, 686 BC, can be interpreted as a swing of the spin axis of the Earth as it underwent a gyroscopic reaction to an external torque induced by the Earth's plasmasphere

contact with the plasmasphere of another planet. The other planet, in this case, was Mercury -- not Mars, as every researcher expected.



[Image: Mercury in 686 BC. The distance between Earth and Mercury was probably on the order of 50,000,000 miles (80,000,000 km), placing Mercury's aphelion at about 43,000,000 miles (70,000,000 km). Illustration by J. Cook.]

The first effect of the sudden electric repulsive forces experienced from Mercury, as the plasmaspheres connected, was a shock felt worldwide. The stars would seem to fall, or, on the day side of Earth, the Sun would move away from its normal path.

Sennacherib returned to Assyria, did not record this nighttime disaster (or the campaign) among his records, and spent the next 8 years in seclusion. Two of his sons kill him while he is at prayers in the temple of Nergal (Mars).

There was an Egyptian monument in the eastern delta (at Letopolis, "Mouse City," also known as the "City of the Thunderbolt") to a "mouse god" (per Herodotus), erected in commemoration (apparently) of the defeat of Sennacherib's army which had left Egypt in 686 BC (or never reached Egypt). There are also extant temple inscriptions bearing on this.

I would suggest that it was Mercury which was involved in the incident of 686 BC. Mercury is Hermes among the Greeks, but known as Smintheus or Apollo Smintheus ("Apollo of the mouse") in Asia Minor at the time when Mercury was

still known as Apollo, the Archer God, among the Greeks, as in the *Iliad*. The name Apollo was transferred to the Sun at a later date.

Mercury, which is only a little larger than our Moon, certainly might have looked like a mouse with its plasma coma and plasmasphere tail at a considerable distance from Earth, just as it might have looked like a bow and arrow with its polar plumes and tail. Although the date, supposedly March 23, 687 BC (Julian), would seem to argue for Mars as the agent, a second Earth shock by Mars is not at all well supported. I would opt for Mercury as the agent, and I would place the event in 686 BC rather than 687 BC. For more information bearing on this see Appendix B, "The Celestial Mechanics."

The Earth shock event was experienced at night in Peking and Jerusalem. Chinese sources read "at night" and "at midnight," as does the Bible. Although Mercury was not seen during the daytime in Asia or the Middle East, it was seen by North American Indians in the daytime. The impact can be located in Northern Alabama and shows as a circle of mountains. To paraphrase from various legendary North American Indian sources, this is what transpired:

The Sun was in the day sky a few hours before or after noon when it turned black and started to move down, that is, moving directly toward the horizon and additionally toward the southeast. The Sun was choking, and as it dipped down in the sky, the sky darkened and Coyote (Mars) was noticed in the east. Coyote had just crossed over the Earth's orbit in the last few days. Obviously Coyote had snared the Sun, and was dragging it backwards. Only after an hour did the Sun brighten again and return to its path across the sky. Then it was seen what had happened. A mouse had chewed through the lasso. It could still be seen just west of the Sun, with its tail pointing away.
[\[note 29\]](#)

The tale of a mouse in the sky is known throughout the world in various forms, as De Santillana and Von Dechend point out in an appendix to *Hamlet's Mill*. Some of these are not accurate for an involvement with the Sun, however. Most of the daylight during this incident spread only from far Western Europe to the middle of the Pacific. Thus tales of winged mouse Gods from India are suspect. The Polynesians have myths dealing with a rat God that gnawed through the nets of the Pleiades. Mercury was within a few degrees of the Pleiades on March 23, 686 BC. This is correct if it is considered that at this time the dome of the stars had not yet shifted (that would happen in 685 BC) so that the Sun stood directly below the Pleiades at the spring equinox.

As I have previously noted, this event also represents the Tower of Babel incident: a plasma cone in glow mode extending from Earth to Mercury and ignited Mercury's atmosphere. The plasma connection may have lasted a day or more. In that case, everyone saw it, and certainly everyone saw the flaming planet. The reason this story is known worldwide is because it came so late in the history of antiquity. The loss of memory and speech may have been associated with this specific incident, or may reflect the changed condition of the Sun's electric field the following year. More on this last later. [\[note 30\]](#)

The Death of Quetzalcoatl

The shock which cast Mercury into an orbit close to the Sun may have changed the eccentricity of Earth's orbit (which would not change the length of the year but would allow for a required change in Kinetic Energy), because soon after the encounter with Mercury, Earth seemed to have moved its orbit away from intersecting the orbit of Mars and was thereby removed from the threat of Mars. Shortly after Earth was removed from the vicinity of Mars, Venus, too, fell from the sky. [\[note 31\]](#)

"How art thou fallen from heaven, O Lucifer, son of the Morning?"
-- Isaiah.

What happened to Venus? From what little we know, it looks like Venus was suddenly involved in a massive plasma discharge. The discharge also involved Mercury. But less notice was taken of Mercury, for at the start of the nova event Mercury was very close to Venus in the sky. Most peoples recognized Venus, but not Mercury. The starting and ending dates of this event are developed in the chapters "Modern History" and "Olmec Alignments." [\[note 32\]](#)

In Mesoamerica, Quetzalcoatl, who is Venus, is represented as the bearded man or God, who had come from the east to deliver all the benefits of civilization. In their recycling of all history, the Mesoamericans make Quetzalcoatl into the last king of the abandoned and famed city of Tula, already an ancient ruin at the time of the Mesoamerican authors of the 15th century AD. To paraphrase, "Quetzalcoatl, the last King of Tula, traveled east, and set himself on fire. Eight days later he arose in the sky as the Morning Star (Venus)." Both the *Popol Vuh* and the *Annals of Cuauhitlan*, two documents independently written a thousand miles apart, agree on this. In the *Codex Borgia* the mythical hero Quetzalcoatl is burned while his heart ascends to heaven as the Morning Star. [\[note 33\]](#)

The "burning of Quetzalcoatl" happened far from Earth, since it did not involve any noticeable geological disturbance on Earth, although we have many notices of the "Ignis Coelis" during this period. It may very well be that the condition of electric charge for Venus had mounted to the point where only a plasma discharge or a mass ejection could balance forces. At any rate, after its last passage behind the Sun, Venus seems to have undergone a massive plasma discharge, and, at some later time, assumed a circular orbit. It must have been an enormous energy outpouring, for Venus lost its coma, its talons, its feathers, and the tail or flowing hair. It assumed the looks of a star. But it took months.

If, as I have suggested, Mercury was involved in the March 23, 686 BC, plasma contact with Earth, then it might also be suggested that we are not seeing Venus involved in a nova event, but that this was a nova-like event of the Sun, involving both Mercury and Venus. When Mercury changed its orbit to fall well within the orbit of Venus, it disturbed electric conditions close to the Sun. Today the Sun still reacts to comets which come close by hurling coronal mass ejections toward them into space. That would make more sense of the description, from China, that two suns were seen battling in the sky at this time. The two Suns do not imply that one of them was the actual Sun. But since Mercury remains close to Venus at first, and within a month was close to the Sun, it is certain that for many observers the display involved only Venus and the Sun. The sudden brightening of Venus was recorded in extensive references to "a prodigy in the sky" and of Venus "blazing through the day sky brighter than the Sun," as well as references relating the changes in the sky. [\[note 34\]](#)

We do not know exactly when this happened, but my suspicion is that it occurred during the year 680 BC in Eastern Mediterranean chronology, which is 685 BC in absolute astronomical chronology (to be discussed below). There are a number of reasons why we have no certain date for this event. First, because the blazing of Venus spanned a considerable amount of time. It was not an event lasting only a day. In fact, it lasted a month and a half, 40 days. Second, the event was not associated with any cataclysmic changes on Earth. And third, the effects were not noticed until the following year, or later. Only later were the lasting changes recognized: Spring started two weeks later, the constellations had moved in the sky, and the polar axis no longer pointed to a location in Ursa Major. When later attempts were made to understand the changes, it came as a massive shock to ideas about the Gods, about knowledge, and about the workings of the Universe -- which will be the subject of the following chapter.

The blazing planets must have represented a cataclysm equivalent to a supernova. The event should have been noted in Chinese records as a nova. It was not. The earliest Chinese record of a supernova (a "guest star") is for AD 185. The eruption of Venus was not considered a "guest star" because the display was immense and happened during daytime. It was not a star, it was obviously the planet Venus, which, because of its coma and tail, would have readily been seen in the daytime in antiquity, and the planet Mercury.

For both the Mediterranean region and Mesoamerica, the blazing of Venus became the end of mythical and divine history. No new Gods enter the pantheon after this -- with the exception of the personification of Venus as the savior of mankind (as Quetzalcoatl, Mazda, Mithra, and Christ). Saved, that is, from 120 years of harassment by planets and planetary Gods. Mars showed up nine times during this period, delivering a shock the fifth time, which changed the orbit of the Earth, and landing continuous lightning strikes the other times. Mercury closed in on Earth nine times, delivering a shock to Earth the last time, which did not alter the Earth's orbit. (For the Earth shock by Mercury see Appendix B, "Celestial Mechanics." For the nine visits of Mercury, see the chapter "The Chilam Balam Books.") In addition, Mesopotamia, the Near East, and Egypt were subjected to constant warfare during this time, as was China. These would have effectively masked the records of visits by Mars.

When Venus and Mercury started to blaze in the skies, it must have seemed as if the end of the creation was at hand. But it ceased, on July 25th, 685 BC, suddenly, when a massive plasmoid lightning strike by Jupiter stopped the blazing planets. I'll discuss this in the next chapter.

The Ballgame

In the 8th century, not only did Mars come close to Earth, but on at least one occasion this happened at the same time that Venus was "near Earth" -- but only visually so. This was 700 years after the post-Exodus date of 1440 BC. Venus was seen streaking across the daytime skies and this event was recorded, apparently in 776 BC, but only because Mars also appeared near Earth at the same time, making it look like the planets were in a race.

Venus could not have come close to the Earth without causing the complete destruction of the Earth. Venus, a much larger planet than Mars, with a very large coma, might have looked perhaps half the size of the Moon if it was seen

from 10 million miles (16 million km) away. (The Moon is only a quarter million miles away.)

Thus both Venus and Mars were seen on the day side of Earth, and the two planets seemed to chase each other across the sky towards the west (due to the Earth's rotation). If Mars passed Earth at a distance of one-quarter to one-half million miles, Mars would have looked the size of the Moon. Because Mars was much closer to Earth, it might indeed have looked as if Mars was gaining on or overtaking Venus. This may have played out over a number of days.

It has been suggested by Velikovsky that the Earth's Moon seemed to cross the path of the two planets (as if they were near) in its normal rotation around the Earth, but in the opposite direction. Velikovsky proposed that the Moon may have started to change its orbit in response to gravitational forces from three directions. That is totally unrealistic. Almost all imaginings of gravitational forces between planets, even if supposedly close together, completely neglect the absolutely overwhelming effect of the Sun in determining the orbits, and the role of forward momentum which simply does not allow a planet moving through space at 67,000 miles per hour (100,000 km per hr), as the Earth does, to diverge by even a fraction of an inch from its path.

Velikovsky identified the globes seen in the sky as a "ballgame" between Venus and Mars, with the Moon playing the part of the ball. The Moon was selected as the ball for want of any other likely planet, and the notion that the Moon is small. A problems with this identification are two-fold. First, the idea of a "ballgame" is a Mesoamerican notion, which is here being transferred to the Eastern Mediterranean, where there was no such thing as a "ballgame." It was a foot race instead.

Second, it is much more likely that Mercury played the part of the ball, although from Greek sources (the *Odyssey*) the Moon certainly was involved in an electric contact with Mars (but this was not the ballgame). Traveling faster than the Earth, Mars and Venus, or Mars and Mercury, eventually disappeared into the celestial east. This race, of course, was seen from the day side of the rotating Earth, so the planets would seem to be moving to the west. [\[note 35\]](#)

The *Popol Vuh* records the interactions between One-Hunahpu and Seven-Hunahpu, the father and uncle of the celestial twins, Hunahpu and Xbalanque, as the "ballgame." The father and uncle here were Venus and Mars, most likely using Mercury as their ball. Here there is a ball in play, since we are here among the ball-playing Olmecs. In the *Popol Vuh* the father and uncle (as later with

Hunahpu and Xbalanque) are said to travel west to reach the ballcourt of the Gods of the Underworld.

The exact year in the eighth century BC of this race between Venus and Mars (or the ballgame involving Mercury) has never been certain, although a date (780 or 776 BC) can be inferred from the date of the first Olympic Games in Greece which was in 772 BC. [\[note 36\]](#)

Venus and Mars may have met "near Earth" (visually) at other times in addition to 776 BC, for in 742 BC, Isaiah declared a prophetic sign "in the height above," to King Ahaz of Judah, saying:

"Behold, the Virgin shall conceive and bear a son, and shall call his name Immanuel ["God is with us"]. Butter and honey shall he eat... ."
-- Isaiah 7:12-14

"The Virgin" is Venus. "Virgin" is a Greek translation of the Hebrew word "the maid" (Ha'almah, per Fritzius, below), that is, "young woman," as Isis/Astarte (Venus) had been known for 2500 years. The date of 742 was derived by Ussher.

Bob Fritzius contends that the "child" is Mars appearing from behind the coma of Venus, and moving through the tail. (He later disclaimed Mars, but offered no substitute.) It is actually Mercury, not in the tail of Venus, but visually behind Venus. See the website at [\[http://www.datasync.com/~rsfl/vel/ha-almah.htm\]](http://www.datasync.com/~rsfl/vel/ha-almah.htm).

A later addition to his webpage suggests that what may have been seen was an aborted fissioning of Venus (but I think this is suggested because the phenomenon cannot be tracked to any particular dated event from antiquity). Fritzius believes there is support for this from Greek mythology. Fritzius is a published astronomer and an electrical engineer, but has yet to find mythological support for this event.

There are some problems with the "Immanuel" prophecy. I cannot find anything in Greek mythology that refers to this except a very brief mention of the parentage of Phaethon (who is Mercury) by Hesiod, which Marinus van der Sluijs has pointed out in an article, and which I will address later.

I think the prophecy by Isaiah refers to 685 BC, not 742 or 747 BC. The "fissioning event" recalled in mythology is more likely a recollection of the blazing of Venus and Mercury after June 15 (Gregorian) of 685 BC (the astronomical year), when Venus and Mercury were visually within a degree of

each other, but so bright that their comas seemed to merge. Over the following weeks Mercury would be seen moving away from Venus, as if Mercury had just been born. And this planet, smaller than Venus, and only recently relocated to an orbit close to the Sun, had not been seen in the daytime sky in the previous two years, and never again after 685 BC. Mercury had lost its atmosphere the previous year when an Earth shock relocated it to within the orbit of Venus. Without an atmosphere Mercury, at one time looking nearly as large as Venus, had become much smaller. I think that this later element of 685 BC was written into the much earlier warning issued by Isaiah.

In Egypt Mars appeared as "Horus the Child" in sculpture at about this time (after about 750 BC), an inexplicable third Horus. This is possibly Mercury, although it is unlikely that the Egyptians misidentified Mars. The child Horus is originally shown trampling snakes and scorpions, and his image is a charm against snakebites and scorpion stings (from the application of water run over the limestone image). He is soon depicted at the breast of Isis. (What a change in imagery!) This "Mother and Child" image spreads to the Middle East and the Roman empire, and eventually, through Greek influences in Buddhist India, and is introduced to China. For the Egyptians of the New Kingdom, the second Horus had been assumed dead since circa 2700 BC (or after 1936 BC) when he last passed close to Earth, but at this time, in 747 BC, Mars is recognized again as Horus.

As noted above, Mars, when seen (at one instance) in the proximity to Venus, would look very small and the "Horus the Child" image may have derived from this comparison. The snakes being trampled are described in Vedic literature in the 7th and 8th century BC as contemporaneous companions of Mars. The Vedic hymns, as well as Bible passages and Mesopotamian documents, describe the furious rotation of Mars's satellites accompanied by moving plasma streams, looking like scorpions with waving tails. Vedic literature equates the satellites also with chariot wheels. This last places the description well after 1500 BC, in the age of chariots. The furious rotation of the satellites of Mars were in a direction transvers to the visual travels of Mars past the Earth. Once inside Earth's plasmasphere, the satellites would have trailed sweeping tails as plasma in glow mode, likely composed of the extensive dust of Mars.

Olmec sculptures of this era are of a full-sized adult jaguar or were-jaguar (a half human, half jaguar form), which probably represented Venus (although it may have been Mars), carrying a baby jaguar (depicted as a small adult) who also probably is Mercury.

In the Quiche Maya *Popol Vuh* of the 16th century AD we again meet these characters. The *Popol Vuh* takes liberties with history in order to come up with a smooth narrative, although the core of the narrative was well established nearly two thousand years earlier as can be seen from murals and inscribed scenes.

The hero twins, Hunahpu and Xbalanque, are clearly meant to represent Mars and Mercury, although by the story of their birth they would be Venus and Mars. But they are twins, and as twins most likely they are Mars and Mercury. The "twins" are a celestial phenomenon; a feature which occurs throughout the world at this time -- Italy, Greece, the Middle East, India, China, Australia, and Mesoamerica. Worldwide the twins are identified as black and white, with Mercury (yet with an atmosphere) as the white twin.

In the *Popol Vuh* one twin, Hunahpu, is identified by the Tzolkin day-name of the first day of the Venus cycle. (The *Popol Vuh* is a symphony orchestrated to the day-names of the Tzolkin.) The second twin's name, Xbalanque, could be translated from Quiche as "Little Jaguar of the Night." This is a transliteration from the notes of the book by Dennis Tedlock, *Popol Vuh* (revised edition 1996). Xbalanque is thus most likely Mercury.

In the *Popol Vuh* the appearance of Venus and Mars (although probably Mars and Mercury) a hundred years earlier (or at some earlier time) was understood to represent their father and uncle, who were put to death by the Lords of Xibalba, the Underworld. Both planets had simply disappeared into the night sky after some incident or incidents of the 8th century BC and not returned.

The activities of Hunahpu and Xbalanque are modeled both on the simultaneous appearance of Mars and Mercury in the 8th century BC and on the blazing of Venus and Mercury in the day sky in 685 BC (see later text).

During the various encounters of the 8th and 7th centuries BC, plasma interactions occurred between Venus and Mars, and between Mars and the Earth's Moon. These are described in the *Iliad* and the *Odyssey*. The *Homeric Poems*, which follow closely in time to Homer's epics, have similar descriptions. The *Iliad* retells the events of the 8th and 7th century BC as the interaction between the Olympian gods in the skies above Troy.

One event was an interaction between the warrior goddess Athena (Venus), and the bloodstained god of war Ares (Mars), with Aphrodite (the Moon) as a bystander. To keep Ares from aiding the Trojans in the battle of Troy, Athena drives a spear into Ares's "lower belly, below his belt." The scar still shows as a

3000-mile-long (4800-km-long) gash below the Martian equator. As Aphrodite approaches to help Ares, Athena bashes her in the breast. "And her heart bled [or melted]," reads the *Iliad*. [\[note 37\]](#)

Velikovsky notes that Roman historians for the 8th century BC record wildly erratic "months" which remain unresolved for a century. Despite the descriptions from the *Iliad* and the *Odyssey*, it is unlikely that the orbit of the Moon changed because of plasma strikes. Plasma strikes will wear away the crust of a planet before "moving" it in space. [\[note 38\]](#)

In the *Odyssey*, Demodocus, one of the fictional characters (and a poet), recites a poem dealing with a tryst of Ares (Mars) and Aphrodite (the Moon in this case). In this poetic interpretation, Ares's repeated arc mode plasma discharges to the smaller Moon are his ejaculations. Ralph Juergens mentions that, as Mars closed in, the display would have changed from long-range single arcs to much smaller arcs encompassing the whole sphere of the Moon. This last is the net devised by the smith Hephaestus (also played by Venus) which falls on the lovers and holds them captive. [\[note 39\]](#)

Seen traveling across the skies, and visually at close range, Venus is here known as the smith Hephaestus, a name which otherwise cannot be related to a planet. Alfred de Grazia, in *The Burning of Troy* (1984), wrote about Hephaestus: "whose name Robert Graves says means hemerophastos (he who shines by day)."

De Grazia also discusses at length what is thought to be the event, in *The Disastrous Love Affair of Moon and Mars* (1984), under the assumption that the love affair, which is presented in comic form, is a disguise for the actual terror it produced in the watching humans.

To put all of this together: Venus and Mars appear in the sky, Venus drives a spear into Mars, and bashes the Moon, a hundred years later Mars makes love to the Moon and is caught in a net. Suddenly in 772 BC the Greeks start up the Olympic games at a location as far removed from almost all of the Greek nations as can be imagined: the northwest end of Peloponneses. Although I have no idea what this really meant politically, it could be suggested that it was selected to be in the direction of the earlier contact point of a Saturnian plasma stream with Earth.

The Olympic Games in Greece were instituted in 772 BC (Wikipedia says 776 BC) to commemorate interactions between the planets Venus, Mars, and the

Moon four or eight years earlier. Originally the games consisted of just one foot race. With each of the following Olympics at 4-year intervals, the activities were expanded to include additional races. Other types of athletic contests did not enter the Olympics until many decades later. [\[note 40\]](#)

We would need to ask, Why the celebration of the Olympic Games? It would follow directly from the logic of the ancients: that Mars showed the people what had to be done in his honor to avoid his wrath in the future. At least in the short run that was an efficacious solution, good for 15 years. Like recasting of the terrifying Mars and Aphrodite event as a comedy in the *Odyssey*, the "celebration" of the Olympic Games might be another anti-celebration of the experience of terror. The dating of the event to four-year intervals would bring Venus back into the same region of the sky as 4 years earlier, but not Mars. Venus was definitely a part of the celebrations. I should point out that the sequences of Olympic Games became the chronological base for all of Greek history.

In Mesoamerica the "ballgame" event receives an entirely different interpretation from the "foot race" in Greece. The Olmecs engaged in a game involving a large rubber ball. In Mexico the ballcourt comes into use, although possibly not until some 800 years later. The shape of the ballcourt seems to be based on the look of the equatorial rings in the south night sky at the time of the equinoxes before 2349 BC when the shadow of the Earth opened up the center of the rings as an inverted equilateral trapezoid. The ballcourts, which were ubiquitous in Mesoamerica and in use for 2000 years, consisted of two sloped surfaces between which a giant rubber ball was in play between contestants. In later versions there were enclosed end zones at each end of the alley, giving the overall plan view the shape of a capital letter "I."

We know nothing of how the game was played. I'll propose for this narrative that, when played ceremonially, the ballgame was the religious re-enactment of ball-playing twins mentioned in the *Popol Vuh*; or perhaps the planet Venus and the Sun playing ball in 685 BC, perhaps with Mercury.

The ballcourt is a feature which came to be in near-universal use throughout Mexico and the game, in typical Mesoamerican style, was (apparently) a deadly affair. It is today suspected that the loser (or the winner, some say) was decapitated. It is also, as ever and everywhere in antiquity, in imitation of what was seen in the sky. [\[note 41\]](#)

The concept of a celestial ballcourt becomes an architectural feature of many (but not all) Mesoamerican ceremonial centers, at a minimum so that the ceremonial center and the setting location of the Sun along the horizon, become the two bouncing walls of the ballcourt. The ceremonial centers thus controlled the travels of the Sun. This is the case at Teotihuacan where there are no ballcourts.

Early excavators at the Olmec site of La Venta (900 BC to 400 BC) thought they had discovered a ballcourt (the area between two berms, directly north of the pyramid), but it turned out not to be so. One of the discovered sculptures, however, is still known today as "the football player." They did find rubber balls, to be expected, since the Olmecs cultivated the rubber tree. Apparently ballgames were played at La Venta and the earlier San Lorenzo (1450 BC to 900 BC), for sculptures of the gear and accessories have been identified. Additionally, the colossal heads found in the surrounding jungles all have "helmet" head wrappings, also suggestive of later ballcourt players elsewhere in Mesoamerica (but the original suggestion for this is based on American leather football helmets of the 1920s).

The head wrap may represent a means by which the Olmec people identified themselves with Mars, whose smooth upper half was seen on the close approaches in the 8th and 7th century BC, but this does not explain its use with the 10 heads found at San Lorenzo, which, as I will suggest later, most likely represent Venus rather than Mars. Of course in both cases (Mars and Venus) the planets jolted the Earth like a ball in play between contestants.

See also Linda Schele and David Freidel *Maya Cosmos* (1993), which discusses three ballcourts at the Maya site of Yaxchilan. The ballcourts were named "First Creation," "Second Creation," and "Third Creation," and have, in addition to the dedication date, appended time intervals pointing to earlier (or first) manifestation of these events (to which these ballcourts were dedicated), all of which can be placed, as suggested by Schele and Freidel, in the 7th century BC. And all of which are the wrong dates by thousands of years -- as a complete misreading of the information of the daybooks which were inherited by Yaxchilan. As I will point out in a later chapter, the historical references are to "creation" celebrations involving the large "altars" found at La Venta, not to celestial ballgames.

Special thanks S Borruso for the note on Josephus.

Endnotes

Note 1 --

The destruction was in fact much worse than presented here. Whole cities and islands disappeared, others rose out of the sea. The destruction extended into Northern Europe. See in particular Velikovsky's unpublished documents at varchive.org, "The Dark Ages of Greece," the particular chapters [["Changes in Land and Sea"](#)] for Roman recollections, and [["Closing the Gap"](#)] for Greek, Egyptian, European, and Mesoamerican notes.

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Note 2 --

During the 8th and 7th century over 300 cities in the Middle East were destroyed by earthquakes and fire. The Mycenaean Greek culture came to an end at this time (although conventionally dated 1200 BC). Mesoamerican farming villages, originally established after 1500 or 1200 BC, also suddenly disappear after about 800 BC.

In *Chaos and Creation* (1983), Alfred de Grazia writes about the book by Claude Schaeffer, *Stratigraphie Comparée et Chronologie de L'Asie Occidentale, IIIe-IIe millénaires* (1948):

"Certain outstanding events ... struck simultaneously a definite number or even the totality of urban centers of Western Asia. ... Not only is this conclusion persuasive as originally inscribed, but many locations can now be added to the doomsday list."

De Grazia notes the dates of about 2350, 2100, 1700, 1450, 1365, and 1235 BC, and adds:

"all that Schaeffer 'automatically' consigns to the end of the Middle Bronze Age, at around 1750 BC I assign to the same time, but dated at about 1450 BC. The many destructions that he consigns to 1200-1300 BC, I assign to 800-700 BC."

"The results are remarkable. Suddenly, the vast 'hiatus' between '13th century' destruction and 6th century proto-classical times becomes only a brief hiatus. It is clear that the vast movements of 'the peoples of the seas'

were a fiction employed by scholars to explain the widespread natural disasters of the 8th and 7th centuries, the Mars disasters of our calendar."

In 1961 de Grazia contacted Schaeffer about updating the 1948 information. The project was cut short by Schaeffer's death.

The "people of the sea" are today held to be real by archaeologists, despite their admission that absolutely nothing is known about them, and there is virtually no mention of them in Ehyptian records. I would suspect that the "people of the sea" are asteroids, comets, and bolides in the company of Mars. The sea, in that case, is the sky, even though the Absu had long ago disappeared.

But these could also be refugees from the northern regions devastated by Mars. Revisions of Egyptian chronology have moved the 19th dynasty 500 years into the future, resulting in a coincidence of some of the "sea people" incidents (there are plenty of casual although unspecific Egyptian mentions) with the suspected overpasses of Mars. See, for example, to begin with, Immanuel Velikovsky, *Ages in Chaos* (1952), and following texts. Also see Jim Reilly, *Displaced Dynasties* (displaceddynasties.com, circa 2000).

De Grazia's suggested changes of Schaeffer's dates are only "more or less" correct for the lapses in chronology of the Eastern Mediterranean region. First, 2350 BC and 2100 BC can be left to stand for my dates for changes in the Earth's orbit in 2349 BC and 2193 BC.

Schaeffer's date of 1750 BC is 300 years earlier than de Grazia's date of 1450 BC (as representing the Exodus). I should note, however, that except for Schaeffer's collected data, there is little other indication of destruction anywhere else in the world. A considerable portion of the lack of backup studies of the archaeology of this era is designed to avoid confirming the theories brought forward by Velikovsky.

The dating hiatus of the Greek "Dark Ages" starts in about 1200 BC, when the last of the Mycenaean structures are today dated. Thus Schaeffer's dates of 1365 and 1235 BC are probably correctly moved by de Grazia to the period of 806 BC to 687 BC.

Patten and Windsor, in *The Mars-Earth Wars* (1996), assume that Mars alternately showed up at the spring equinox and in October. I have included the alternations between spring and fall suggested by Patten and Windsor, but at an interval of 15 years, as initially suggested by Velikovsky, and as can be verified

from the Maya *Chilam Balam*. This series makes much more sense in terms of Bible chronology, and especially the series of prophets who warned of these events. The date of 702 BC also matches the suggestion by Patten and Windsor that the length of the year changed in -701 (but which actually happened in 747 BC).

The *Chilam Balam* is a collection of post-colonial (16th century AD) native manuscripts in the Mayan languages, using European script, which recorded histories and prophesies, many dating back with certainty for hundreds of years, while others recollect events dating back thousands of years before we have any archaeological inkling of the Maya.

Extending the close passes of Mars backwards from 747 BC (-747), give the following set of dates extending to 806 BC, based on the simple supposition of an interval of 15 or 14.5 years. At any rate, the change in the length of the year in 747 BC would not significantly alter these dates. This combines the suggestion of Patten and Windsor with what I have from other sources. (I have added the 686 Mercury event, and the 685 Venus and Mercury nova -- to be discussed later.)

year Julian	date Gregorian	notes
806 BC	Spring 805 BC	
791+	Oct	
777	Feb 776 BC	the 'ballgame'
762+	Oct	lesser violence
748	Feb 28 747	Earth shock, year changes
733	Oct	lesser violence
718	Mar	
703	Oct 702	lesser violence
688	Mar 687	last sighting of Mars
additional data:		
687	Mar 23 686	Sennacherib; shock by Mercury
686	Jun-Jul 685	Venus and Mercury in nova

If the last (and only) Earth shock involving Mars happened in 747 BC, then the current synodic period of Mars can be used with an ephemeris for the dates after 747 BC, since there would have been no further changes in the orbit of Mars, except for a change in ellipticity (which does not change the orbital period). That means that the "contacts" of Mars with Earth before 747 BC might have involved only a slightly different synodic period for Mars. The last few calendar

dates are accurate, and can be verified from Chinese and Mesoamerican sources. The "Sennacherib event" was likely on March 23, 687 BC (Julian) and did not involve Mars, as an ephemeris will show. See endnotes of the following chapter for additional details plus Appendix B, "The Celestial Mechanics."

The archaeological record at Olmec La Venta only records the last five events, including 687 BC, although this might be the Earth shock by Mercury in 686 BC. The Guatemalan *Popol Vuh* also records a mythology of five close contacts. It is possible that Mesoamerica was differently affected by the first four contacts by Mars before 747 BC, since the Earth's orbit changed in 747 BC, although the archaeology of Central America records the disappearance of many villages in the 8th century BC.

The lack of daybooks based on the Long Count (which was instituted in 747 BC), kept the previous four contacts with Mars from showing up in later transmitted record books. The *Popol Vuh* thus only recounts details of the last five contacts recorded in the Day Books.

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Note 3 --

Mercury, which apparently accompanied Mars, and was known at that time as Apollo, also steals cattle. It is amazing that there are so many stories about the doings of Apollo, if indeed this planet was only seen for very short periods at sunrise or sunset.

Velikovsky quotes from Vedic hymns and from Joel. Inadvertently many of the descriptions match plasma effects and interactions with Earth's plasmasphere of the asteroids closely following Mars.

The Maruts number seven, writes Cardona, from information gathered from Indian sources. Away from the mass of Earth the gravitational sphere of influence for Mars would have been about 400,000 miles (650,000 km) (100 times the diameter of Mars, per Van Flandern). This is twice as far as the Moon is from Earth, and well within the gravitational sphere of influence of Earth. We can only assume that the Maruts remained with Mars because their velocity never matched the required speed needed to become Earth or Mars satellites or escape.

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Note 4 --

Plato, in *Timaeus*, recalls what Egyptian priests told Solon:

"... you and your whole city are descended from a small seed or remnant of them which survived. And this was unknown to you, because, for many generations, the survivors of that destruction died, leaving no written word."

"For when there were any survivors ... they were men who dwelt in the mountains; and they were ignorant of the art of writing, and had heard only the names of the chiefs of the land, but very little about their actions."

The phrase, "men who dwelt in mountains," supports de Grazia's characterization of the survivors.

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Note 5 --

The linguistic analysis by de Grazia and others exemplifies the impact that Homer's writings and language had in subsequently unifying the geographically widely separated Greeks. Alfred de Grazia writes:

"Homer used metaphors of the clearest and most ordinary kind, to the exclusion of far-flown and fancy comparisons. His poetry seems to be addressing audiences of low verbal ability; or they might have understood a melange of dialects and phrases, a lingua greca like a lingua franca or both. On the other hand, his similes are prolonged and complicated, dealing with rural and pastoral comparisons."

"More significant is the non-use of a sacred, liturgical language. If there had been a Mycenaean dead language, like classical Greek is to modern Greek, or Latin to Italian, then would not that have been the basis for portions of the epic poems? But it was not, not even for prayers. Therefore it did not exist. Mycenaean Greek was probably a living and related set of dialects whose standard expression had disappeared with its ruling class and scribes."

"The linguistic melange (with its numerous catch-phrases of all Greek sub-cultures), which was Homeric Greek, was 'instant prosody.' There had been no time, no more than a couple of generations, to build an epic language. Yet such an epic language would surely have evolved smoothly and uniformly over the several centuries of any 'Dark Ages.' What emerges

therefore is a people and culture exploding in space and time, whose language, that of Homer, had not yet caught up with its expanding front."

By 600 BC the Greeks of Asia Minor make a concordance of Homer's vocabulary and are unable to place or define many of his words. It should be noted that Homer probably reintroduced the alphabet to the Greeks, since it seems clear that his works were not recited for 400 years, as conventionally understood, but written down.

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Note 6 --

The iconography of the Maya, as well as the Quiche *Popol Vuh*, describe a direct connection between Mars and Earth by having Mars (K'awil, in Mayan; Tohil in Quiche) stand on a single leg, often a snake, which is a representation of lightning, reaching down four or five diameters from the bulbous body (or head) of Mars.

Mars, lacking a magnetic field and atmosphere, would have shown with a surrounding dust-laden plasma coma which would have been very little larger than the actual planet.

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Note 7 --

Only where Mars came closest to Earth would mountain ridges be generated. The mountain ridges would be formed in strips parallel to latitudinal lines. Similarly, as the Earth rotated, the electric arc of Mars would travel at the same latitude around all of the Earth. The seasonal tilt of the Earth has no influence on this, despite the claims to arc-shaped mountain ridges made by Patten and Windsor.

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Note 8 --

De Grazia suggests the deposition of iron ores (iron oxides) at the time of these close approaches of Mars. But disassociated ferrous and ferric iron ionize positively, and would have remained at Mars, under the assumption that Mars represented the cathode during lightning strikes. De Grazia bases much of this on the association of the start of iron smelting and forging -- the start of the "Iron Age" -- with the two centuries when these events happened. Iron ore is not

confined to horizontal bands in the northern hemisphere, as it should be if it was deposited by Mars.

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Note 9 --

There is a third companion or satellite of Mars mentioned by Homer ("Discord" or "Strife"), which is missing today. However, the description is closer to a rising stream of plasma, reading, "Strife, whose fury never tires, sister and friend of murderous Mars, who, from being at first but low in stature, grows till she uprears her head to heaven, though her feet are still on earth."

Jonathan Swift wrote the following in *Gulliver's Travels* (AD 1726):

"They [the Laputans] have likewise discovered two lesser Stars or Satellites, which revolve about Mars, whereof the innermost is distant from the Centre of the Primary Planet exactly three of his Diameters, and the outermost five [Diameters]; the former revolves in the Space of ten hours, and the latter in twenty-one and a half."

He follows this with some mathematical information. The information is nearly correct, and involves Keplerian and Newtonian mechanics. Swift knew both Isaac Newton and Edmund Halley, although neither knew of the satellites of Mars. No telescope could resolve the satellites until 1877, 150 years after Swift. The actual distances are 0.4 and 3.5 diameters and the periods of rotation are 7.5 hours and 30 hours. Patten and Windsor make the following observation in *The Mars-Earth Wars* (1996):

"At that time, in 1725 and 1726, astronomers did not know the diameter of Mars. Laputans disclosed the distance of Phobos and Deimos from Mars not in English miles but rather in Mars diameters. Astronomers in the early 1700's did not know the accurate value for the length of the astronomical unit. And they didn't know how far Mars was from the Sun. This unit of measurement in the satire suggests a very ancient sketch was involved, or a copy thereof from the Catastrophic Era."

Isaac Asimov, in *The Kingdom of the Sun* (1960), dismisses Swift's claims as a lucky guess, but then writes:

"However, his guess that Phobos would rise in the west and set in the east because of its speed of revolution is uncanny, it is undoubtedly the luckiest

guess in literature."

Others have suggested that the information came from China or Japan during the 18th century. Swift places Laputa as a small island off the coast of China.

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Note 10--

Although the Aztecs arrive very late to Central Mexico (AD 1100) they derive the qualities of their war God (Huitzilopochtli) from the Toltecs (since circa AD 800) whose war-like God (initially Xipe Totec) had been imported into the region. The people of the earlier classical phase, as at the ceremonial city of Teotihuacan, lasting from circa 200 BC to circa AD 700, had worshipped more benign deities (as far as we know).

It was visitors from Teotihuacan, however, who introduced a magic shield consisting of a flayed human face to the Maya, along with a considerably less effective dart thrower. The genesis of the flayed face, as a mask or shield is clearly seen in earlier Olmec sculptures.

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Note 11 --

The year 687 BC is four 15-year periods after 747 BC, thus suggesting 5 close passes of Mars if 747 BC is included. The year 702 BC is three 15-year periods after 747 BC, equivalent to four close passes.

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Note 12 --

From the timing of the effects on dawn and dusk, it seems clear that the episode of the *Iliad* recounts a shock by Mars in Northern Asia in 747 BC. The episode of the *Odyssey* recounts a shock by Mercury in North America in 686 BC, and thus experienced at nightfall in Greece. Electric contacts happen at about noon local time, and thus this would be a location of Earth facing the Sun. The *Iliad* and *Odyssey* recount what happened at dawn and dusk, a quarter turn away from the location of the noon sun. With these details in place the respective composition dates of the *Iliad* and the *Odyssey* can be determined as after 747 BC and also after 686 BC.

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Note 13 --

See the article by [\[Ralph Juergens\]](#). From this, by the look of the rilles of craters of the Moon, it might only take seconds instead of minutes for electrons to course through crustal material.

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Note 14 --

With the second Earth shock in 686 BC the length of the year was not changed at all, since we have no record anywhere of additional calendar reforms. I would suspect that the ellipticity of Earth's orbit changed in 686 BC.

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Note 15 --

More details and ephemeris data may be found in the Appendix "The Canopus Decree."

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Note 16 --

The "Era of Nabonassar" actually starts on February 27th of the Julian calendar. Ussher relates:

"From twelve o'clock [noon], on the first day of the Egyptian month Thoth, from Wednesday, February 26th, in the evening, in the year 747 BC, all astronomers unanimously start the calendar of Nabonassar."

Ussher is here supposedly using the Julian calendar. The date matches the starting date of the Roman calendar (which we use today) as starting on March 1, the day after February 28th. The Olmec Long Count starts on February 28, 748 BC (-747), but on the Gregorian calendar. I suspect that in all these cases the actual dates are on a seasonal calendar, a Gregorian equivalent calendar.

"Starting at noon" has been the bane of Julian day chronology ever since Ptolemy. "In the evening" is the start of the day.

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Note 17 --

Before 747 BC, when the Moon's orbit was 30 days, the Moon would have been on an orbit around the Earth which was considerably larger than today. There would not have been any eclipses (lunar or solar) seen on Earth, for the hard shadow of the Moon, the umbra, decreases in size with distance, and at some distance completely disappears. This happens on occasion today because the distance between Earth and the Moon varies somewhat over time.

Ptolemy does not list all the eclipses which might have been available to him, even though certainly by AD 200 these could have been retrocalculated. Ptolemy lists ten lunar eclipses between 721 BC and 381 BC, from Babylonian sources, 5 eclipses from 201 BC to 141 BC, from Greek sources, and four between AD 125 and AD 136, from his own observations (at Alexandria). The number is certainly much less than the 400 or more eclipses which might have been visible in Mesopotamia (although, eclipses are visible only in limited and variable portions of the world).

Robert R. Newton, in *The Origin of Ptolemy's Astronomical Tables* (John Hopkins, 1985) (also, *The Crime of Claudius Ptolemy* 1977), questions the validity of many of these eclipses. Others are of a different opinion, although John M. Steele, in "A Re-analysis of the Eclipse Observations in Ptolemy's *Almagest*" in *Centaurus* 42 (2000), also questions the validity of some dates.

The point, however, is that both in Alexandria and China, records of eclipses start to appear only after 747 BC, although the earliest in both instances are in 721 and 720 BC. Some of the first eclipses of the Sun experienced in the 8th century BC were at times produced by Mars, and would have been associated with the destructive contacts by Mars. These solar eclipses would have struck terror in the people of the Mesopotamian region.

Alfred de Grazia has noted:

"When Velikovsky's Worlds in Collision appeared in 1950, many a critic leaped at it claiming that eclipses of the times before 700 B.C. were known and hence the skies had been orderly for long before then. Over the years he and his supporters put to rest this claim. No such historical record exists; there is no anomaly present."

-- from *The Burning of Troy* (1984)

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Note 18 --

In the previous era, 1492 to 747 BC, the year had been 360 days and the period of Venus was 225 days. The synodic period of Venus (the time of an apparent revolution around the Sun as seen from Earth) would be $(360 \times 225) / (360 - 225) = 600$ days.

The continued use of a 10-lunar-month calendar (from the previous era of 2193 BC to 1492 BC), after the year had changed to 360 days (and 12 lunar months of 30 days), would match the 600-day synodic period of Venus. Two rotations through 10 months would bring the year around to another helical rising of Venus. After six rotations through 10 months the helical rising of Venus (which, I should point out, was absolutely spectacular in antiquity) would again fall on the same solar year day as 5 years earlier, $5 \times 360 - 3 \times 600 = 0$. Five 360-day years is 1800 days; six rotations of 10 months of 30 days is also 1800 days.

This explains why after 747 BC, when the period of the Moon no longer divided the Earth's year into equal and repeating segments, the "Venus calendar" was kept in use. Even though it fell behind a day every four solar years it was much more useful than a calendar based on the Moon.

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Note 19 --

Ussher states:

"748 BC -- Rome was founded by Romulus according to the reckoning of Fabius Pictor, the most ancient of all Roman writers. This date is confirmed according to the account of the secular games held by the ancient Romans most religiously. This happened shortly before the beginning of the 8th Olympiad, on the feast of their goddess Pales, on the 10th day of April."

The 8th Olympiad is $776 - 8 \times 4 = 744$ BC, shortly after 747 BC.

Velikovsky suggests that the changes in the Roman months were made following 747 BC, but this is not likely to be correct. Because it is certain that before 747 BC there were 12 months of 30 days in the year, the only reason to add two months to the year would be to correct the 10-month calendar held over from the previous era, when there were 10 months in the year.

Before 747 BC, all the months were 30 days, adding up to a 360-day year. In 747 BC the decision was made to start the year (March first) after the 28th day of February, since that day coincided with the disturbance (or the end of the

disturbance) by Mars. But with the month of February now short by two days, and the new year five days longer, seven extra days had to be distributed over the 12 months of 30 days.

The extra days of the year were distributed to the first, third, and fifth months of the first five months of the old 10-month calendar (March, May, July) and in the same manner to the second five months (August, October, December), with the last additional day going to January.

Later Roman historians, noting the nearly symmetrical distribution of extra days to alternate months of the 12-month calendar, suggested that the emperor Augustus stole a day from February to be added to the month named after himself, August, just as Julius Caesar had done for his month, July.

The Julian calendar instituted by Julius Caesar included a provision for a leap day. February 24th was doubled, that is, used twice, to accomplish the leap day. Note that this is 5 days from the end of the month. It is five days before the day of the Earth shock by Mars.

But things are not as simple as all this. See, for example, the topic of "Roman_calendar" at Wikipedia. Some of this is made up on the basis of uniformitarian principles.

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Note 20 --

Assuming a 584-day synodic period for Venus based on the canonical values of the Venus calendar of the Maya *Dresden Codex* (dating at the earliest to AD 700), when the Earth's year changed to 365.25 days after 747 BC, the coincidence of an Earth/Venus calendar would have been **(5*584) - (8*365.25) = 2 days** -- representing a slippage of two days over 8 Earth years. A half period (4 years) would only displace the calendar by one day. This Venus calendar was in use throughout the world -- as for example, among the Egyptians and the Inca. It was used nominally also by the Greeks, who base their "Olympiads" on 4- or 8-year intervals, starting in 772 BC. Actual local calendars of the Greek city-states varied enormously, being based on local religious feasts and later on civil tax collection needs.

The Romans, by the first century BC, had done something similar, repeatedly shifting the start of the year by edict of the Senate so as to increase tax collection. Julius Caesar's reform in 40 BC was welcomed universally as a

return to sanity. This is also why he was allowed to move the start of the year from March 1 to January 1, breaking a 700-year-old religious tradition.

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Note 21--

In Mesoamerica only the Zapotecs of Monte Alban in West Central Mexico added a leap day. Apparently this was done in 607 BC, when a switch could be made to the Zapotec annual calendar without missing a day of the traditional Tzolkin calendar. See the chapter "The Day of Kan" for details.

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Note 22--

The Mesoamerican Long Count calendar "completed a Baktun" on February 28, -747 (Gregorian), going to a count of six Baktuns, zero Katuns, zero Tuns, zero Uinals, and zero days (6.0.0.0.0 in Long Count notation), on day 11-Ahau, 8-Uo.

The year is the astronomical year of -747, which is actually 748 BC on the Gregorian calendar. (Astronomical dates include a "year zero," which is not used in BC/AD calendar notation.) I have quoted (as elsewhere) an astronomical date (like -747) as a historical date (747 BC, instead of 748 BC).

Additionally, because of the Mesoamerican concepts that a day does not exist until it is completed, the Long Count use of "day zero" actually signifies the first day of the new era, so that the actual era-ending date is February 27th. I should also note that I am using the Thompson "August 11" correlation for conversion to the Gregorian calendar in this instance. See the chapter "The Maya Calendar" for additional details. The "August 13" correlation was, I suspect, instituted in the Valley of Mexico sometime around 600 BC or later. It spread to the coastal Olmec region, and most of the Maya in the Peten and the Yucatan, but not to coastal Guatemala where the "August 11" Long Count was retained to today.

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Note 23--

The "Post Classical" Maya, after about AD 900, reduced their dating to a repeating cycle of 13 Katuns. This is the Maya "Short Count" calendar, where years rotate through a series of 13 Katuns (20-year periods of 360-day years), before repeating again (thus representing about 256 years). The 13 Katun

periods are named after the name of the last day of the Katun on the Tzolkin day calendar. The series rotates, in turn, through the Katun names of 11-Ahau, 9-Ahau, 7-Ahau, 5-Ahau, etc., followed by a decreasing series of even-numbered Ahau days, and ending in 13-Ahau.

The texts of *The Book Of Chilam Balam of Chumayel*, translated by Ralph Roys (1932) insistently claims that Maya history starts with Katun 11-Ahau.

A Katun 11-Ahau ended on February 28, -747, Gregorian, thus starting a new era. Although we would hold that Katun 9-Ahau would be the start of the new era, in the languages of Mesoamerica it is the completion of a previous time period which marks a beginning. (See the chapters "The Maya Calendar" and "The Chilam Balam" for more details.)

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Note 24--

As a comment on the validity of the date of February 26, 747 BC, for the Earth shock by Mars, Velikovsky wrote, "It is worth noting ... that the ancient inhabitants of Mexico celebrated their New Year on the day which corresponds, in the Julian calendar, to the same date [of February 26]." He quotes from J. de Acosta *The Natural and Moral History of the Indies*, which was translated in AD 1604 and re-edited in AD 1880. "The Mexicans" are the Aztecs, since the Maya celebrated New Year on July 26th when the Sun passed directly overhead in Central Yucatan. However, the quoted date is on the Gregorian calendar, not on the Julian calendar. In about AD 1550 there was a ten-day difference between the Julian and the Gregorian calendars. The date may have been converted from Julian calendar notation to Gregorian calendar notation by the translator or editor.

The information attributed to J. de Acosta does not match other sources for the start of the Aztec new year. Vincent Malmstrom writes, "the Spanish clerics Sahagún and Durán, disagreed: The first cited a beginning Julian calendar date of February 2; the second, March 1."

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Note 25--

Linda Schele and David Freidel used the August 11 correlation in their 1990 book *A Forest of Kings*, but switch to the August 13 correlation with the

publication in 1993 of *Maya Cosmos*.

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Note 26--

Patten and Windsor quote from Louis Ginzberg, *The Legends of the Jews* (1928):

"When Rabshakah [the Assyrian commander in chief] heard the singing of the Hallel he counseled Sennacherib to withdraw from Jerusalem, as on this night -- the first night of Passover -- many miracles were wrought for Israel. Sennacherib however did not accept the wise counsel given him."

Egypt had been under Assyrian control for a number of years, an event not much recorded by Egyptians, when a revolt aided by the Sudanese king Tirhaka ousted the Assyrians shortly before 686 BC. Sennacherib's campaign was meant to retake Egypt.

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Note 27 --

This is what happened in Chicago in AD 1871.

More than a "blast from heaven," the incident of this year (held to be either 686 BC or 687 BC) also has to be recognized for simultaneous worldwide earthquakes. But in those days noone payed attention to earthquakes.

Dwardu Cardona, in "Velikovsky's Martian Catastrophes" (Aeon 1990) wrote about this incident:

"If the sources are to be believed, the suddenness of the slaughter as the army lay resting during the night plus the 'burned' nature of the victims, with their garments remaining intact, do not imply the effects of a hurricane. But with so many contradicting reports, including that given by Herodotus, all of which invoke 'miraculous' phenomena, should any of these bizarre details be given credence? And if so, which?"

"Thus the aura of mystery remains attached to Sennacherib's last campaign but, as matters stand at present, the issue cannot be resolved by attributing any of this to a close Martian flyby which was apparently noted by no one."

The blast of wind happened almost directly opposite the location of the North American contact site of Mercury, not antipodal, but certainly in the northern hemisphere and at almost exactly the same latitude.

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Note 28 --

Eric Miller, at the Saturnian Conference "Velikovsky -- Ancient Myth and Modern Science" (1994, Portland, OR), introduced his talk with the following:

"I was going to go through Velikovsky, show that his dating of 687 B.C. for the second catastrophic event is probably an error, that Velikovsky's sources are incorrect as to his Chinese sources."

The "sources," however, are competent 19th century European astronomers.

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Note 29 --

The source is from Velikovsky and attributed to the Menominee Indians of North America. The Menominee are indigenous to Wisconsin, and thus located well away from the area of destruction. Velikovsky has, as an added detail from an original Ute source (S. Thompson *Tales of the North American Indians*, 1929), "... a huge conflagration enveloped the American prairies and forests as soon as the sun, frightened off by the snarer, returned a little on its way." The timing is absolutely correct. The event was also noted by Hawaiians and Polynesians, who recall (from their perspective) that at the onset the Sun rose and reversed itself before appearing again.



[Image: Semi-circle of compressed mountains centered on Northern Alabama. Source: Google Maps, courtesy of Dennis Cox, <http://sites.google.com/site/dragonstormproject/>]

The North American site of the impact is clearly in Northern Alabama in the USA, centered on Huntsville. The particular shape of the compressed mountains follows the form predicted by consideration of the application of the initial compressive forces. The "burning prairies and forests" were due to a path of electric arcing which traveled west from the "impact" location, and were noted by Plains Indian tribes.

It is quite possible that Venus played the role of Coyote in this tale. Venus was in the day sky west of the Sun. As the skies darkened, Venus would have been seen with the cord of a snare (its plasma tail) in hand, extending away from the Sun.

Consideration of the applied torque (the force due to the electric contact with Mercury), in the northern hemisphere in North America, and the gyroscopic

reaction torque, will support the movements of the Sun and Mars described in the text. (See Appendix B, "The Celestial Mechanics" for additional details.)
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Note 30--

Velikovsky was initially uncertain about the date of the second close approach, but in the chapter "The Later Campaigns of Sennacherib," of the later unpublished text "The Assyrian Conquest," Velikovsky notes:

"In the last century scholars became aware that there were two invasions of Palestine by Sennacherib and that it is possible to discern in the scriptural record an early and a late campaign against Hezekiah. The first campaign to Palestine took place about -701. The second campaign is dated by modern historians to -687 or -686."

He sources Henry Rawlinson and, more recently, John Bright (1962), William Albright (1956 ?), and Edwin R. Thiele (1951).

Likewise Donald W. Patten and Samuel R. Windsor, in *The Mars-Earth Wars* (1996), use 701 BC as the year of Sennacherib's disaster, based on the chronology developed by Edwin R. Thiele in *The Mysterious Numbers of the Hebrew Kings* (1965, and 1951 above).

I am not at all convinced that either 687 BC or 701 BC should be used for a second Earth shock. The selection of dates hinges on the supposition that the catastrophe which befell Sennacherib at the gates of Jerusalem needs to be identified directly with an Earth shock by Mars. This is simply not so, since Sennacherib's army obviously was afflicted with a localized Ignis Coelis. Earth shocks are not required for that to happen, as subsequent history -- into the 20th century AD -- testifies. See Appendix B, "The Celestial Mechanics."

The *Chilam Balam* only has reference to the first and the last appearance of Mars. The first recorded appearance of 747 BC produced the Earth shock, and changed the orbit of the Earth. Earlier close passes of Mars (before 747 BC) were not recorded as significant, or were missing from the day books of the Long Count which was started in 747 BC.

Additional text of the Maya *Chilam Balam* states that some other planet showed up 9 times ("Bolon Mayel" -- Nine Fragrances), bringing flowers and perfumes. To show "flowers" the planet had to have a magnetic field. As I point out in

Appendix B, "Celestial Mechanics," this was Mercury. Mars has no magnetic field. I will insist on the date of 686 BC, not 687 BC, and suggest that Mercury, not Mars, was the agent for the second Earth shock. Two independent Chinese sources confirm the date.

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Note 31 --

I will later suggest that the interactions with Mars stopped in 670 BC, when Earth's orbit became nearly circular (as noted by Rose and Vaughan), and thus Earth no longer came near the orbit of Mars -- which even today is still quite elliptical. See following text for details.

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Note 32 --

It is likely that Isaiah addresses Mercury, that is, Phaethon, not Venus. Phaethon can be placed in 685 BC as Mercury. "Helel ben-Shahar," which is how Isaiah addresses Mercury, reads then as "Shining son of Dawn" (Eos), which is exactly how the Greeks addressed Phaethon.

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Note 33 --

The *Popol Vuh* actually shrouds this in a narrative of the ball-playing twins Xbalanque and Hunahpu, and reads, *"And then the boys ascended this way, here [that is, toward Earth], into the middle of the light, and they ascended straight on into the sky. ..."*

The "eight days" of the inferior conjunction mentioned in the text -- the time after which Quetzalcoatl rose as the Morning Star -- are from the canonical Venus calendar. The Maya values are from the *Dresden Codex*, and were last recopied in circa AD 1200, from manuscripts dating to AD 700. The Maya values and today's values (from first eastern visibility through the following inferior conjunction) are as follows:

236	90	250	8	(Maya canonical values)
263	50	263	8	(Current Values)

...both add up to a total of 584 days.

The values above represent, in order:

- the visibility of Venus after first rising in the east
- the days Venus disappears after setting in the east
- the visibility of Venus after first rising in the west
- the days Venus disappears after setting in the west

After setting in the west, Venus would reappears in the east. Neither the 8 days nor the 50 days are hard and fast, since they vary somewhat with the elevation of Venus above or below the Sun, and the relative elevation of Earth. The total, which represents the synodic orbit of Venus, remains the same. The only differences in the values are due to the ellipticity of the orbit -- which will not change the orbital period. The critics of Velikovsky should have understood that, but remained ignorant of basic astronomy.

The canonical Venus calendar of Mesoamerica is only marginally different from current observations. Of note is the longer time of the superior conjunction. The finely tuned tables of Venus predictions of the *Dresden Codex*, for which the Maya have gained some fame as astronomers, consist entirely of observational corrections to this chart. From this we could guess that the canonical values were derived at an earlier time -- long before AD 700.

William Douglas, in *Kronos* (1982), supplied the visibility and disappearance of Venus in the seventh century BC from the *Tablets of Ammizaduga*, as follows:

240.2 90 249.4 7 (total 586.6) (Section I of Ammizaduga)
245 90 245 7 (total 587) (Section II of Ammizaduga)

As the data shows, the synodic period of the orbit of Venus has decreased by 3 days since the 7th century BC. Since at that time the Earth's period was 365.25 days, the orbital period of Venus was only slightly longer than today, 225.1 days, as can be found from the formula for the synodic period, $(365.25 * 225.1)/(365.25 - 225.1) = 586.6$.

Also note that the Maya canonical values are close to the 7th century BC values. It would suggest that Venus was still on an elliptical orbit at the time when the Maya (or their Olmec predecessors) first collected this observational data.

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Note 34 --

See for instance the collection of references to "a prodigy in the sky," and other notable displays of Venus, by Velikovsky in *Worlds in Collision*. Velikovsky, however, often places events in the wrong era and at times he also identifies celestial bodies as Venus and Mars, when it is obvious from the quoted texts that the references are to Venus and Mercury or Venus and the Sun.

If the flaming events of Venus and Mercury was due to a massive plasma expulsion by the Sun (as seems very likely from the follow-up reaction by Jupiter), then the Earth also would have ended up doing the same thing, but because of the Earth's magnetosphere and enclosing atmosphere, the Earth might have been spared the creation of thousands of electric burn craters. There is the contemporaneous statement by Assurbanipal, king of Assyria, about Ishtar (Venus) "raining fire over Arabia" (quoted in the text). Later Roman writers make the same claim of the Earth burning up because of the close approach of Phaethon, as does Plato.

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Note 35 --

It had been assumed by Velikovsky that the "ball" in the celestial ballgame of 776 BC was the Moon. This was partially based on reports from the Roman sources that the "month" varied greatly around the time of the founding of Rome, circa 747 BC. However, the Roman "month" was a calendar measure, not the orbital period of the Moon. It was an attempt by the Romans to adjust the calendar to the new length of the year after 747 BC. It is just doubtful that the orbit of the Moon would be affected, especially repeatedly. There is also no information on this from any other sources.

Considering that Mercury shows up repeatedly during the period of 806 BC to 686 BC (as it had for periods after 3067 BC and after 1936 BC), it is more likely that it was Mercury which is to be understood as the ball, or (more likely) as a participant in a foot race.

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Note 36 --

The Olympic Games were said to have been founded by Hercules (Mars) at Pelop's tomb at Olympia in the northwest Peloponneses. An ephemeris shows a near conjunction of Earth with Mars and Venus in 776 BC (assuming Mars to be within the orbit of Earth, rather than without). Notes on this may be found in Appendix B, "Celestial Mechanics."

The Chinese Book of Shih King, the *Book of Odes*, lists a "celestial event" for 776 BC. In the 19th century it was reputed to only be an eclipse of the Sun. As a book of collected poetry, the Shih King is not concerned with celestial events. It is the only "celestial event" which entered the book. Since the Moon was on a slightly larger orbit at that time, it is unlikely that the eclipse was caused by the Moon. (No hard shadow would be cast on Earth.) Thus it might have been a planet on an inner orbit.

Another source for celestial phenomena during this period of time, the *Spring and Autumn Annals*, compiled by Confucius and completed about 480 BC, lists some 35 eclipses, almost all of which were verified in the 19th century, but includes no dates significant to conjunctions with Venus or Mars.

The games have to be understood as religious. Mars set the example in the skies of what activity among humans would keep punishments away.

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Note 37 --

In the 5th century BC Herodotus placed the Trojan war in 1200 BC, a date later taken up by Eratosthenes. However, the date has been in controversy since the time of Herodotus. The Trojan War should be placed in the 8th or 7th century BC -- not in the 11th century BC. The testimony of the Asiatic Greeks, who traced their ancestry to the heroes of the *Iliad*, agrees on this. Velikovsky also makes a good case for placing the war in the middle of the 8th century BC, after 747 BC.

Following is a footnote from an unpublished document by Velikovsky on the later dating of the Trojan war. The footnote was added by Jan Sammer. The actual document expands on this considerably:

A. R. Burn, *Minoans, Philistines, and Greeks: B.C. 1400-900* (London, 1930) pp. 52-54: "*It cannot be too strongly emphasized that the traditional date of the Trojan War, 1194-84, adopted by Eratosthenes and more or less tentatively accepted in so many modern books, is absolutely worthless*" being based on Eratosthenes's "*wild overestimate of the average length of a generation.*" Cf. idem, "Dates in Early Greek History," *Journal of Hellenic Studies* 55 (1935) pp. 130-146. Cf. also D. Page, *History and the Homeric Iliad* (University of California Press, 1959) p. 96, n. 159: "*(the date) given by Eratosthenes is nothing but a guess proceeding from flimsy premises which could not possibly have led to a scientific calculation.*" Another

writer adds: *"sober historical judgment must discard the ancient chronological schemes in toto; they are nothing more than elaborate harmonizations of myths and legends which were known in later times and have no independent value whatever for historical purposes."* (G. Starr, *The Origins of Greek civilization: 1100-650 B.C.* (New York, 1961) p. 67.

-- Velikovsky (Sammer) unpublished document at [\[http://www.varchive.org\]](http://www.varchive.org)

The actual dates of the war do not matter. The war was probably a fiction. It is the retelling by Homer and others which weave into the tale the doings of the planets in the 8th century BC that is of interest. Authorship of the *Iliad* can definitely be placed in the 8th century BC, and the *Odyssey* most likely was written a hundred years later in the second half of the 7th century.

Alfred de Grazia, in *The Disastrous Love Affair of Moon and Mars* (1984), makes a cogent case for placing the composition of the Homeric epics to after 650 BC (which he did with no knowledge of the event of 685 BC). He suggests that the characterization of the heroes as berserkers, pirates, and incompetent warriors and sailors corresponds to the expected reaction of survivors of calamities of enormous scope, which removed all prior institutions of government, religion, history, and literacy.

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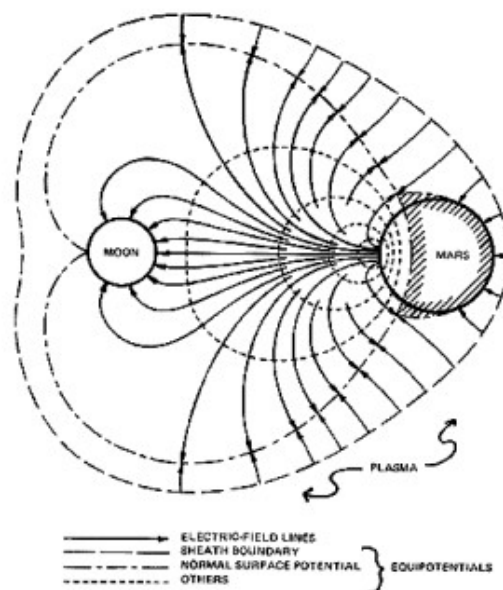
Note 38 --

The new period of the Moon after 747 BC did not fit evenly into a solar year of 365.25 days. In the previous period, 12 months of 30 days had equaled a year of 360 days. Actually, it is my suspicion that the Roman people of Italy were still using a 10-month calendar cycle, left over from the calendar of an earlier epoch (when two 10-month periods exactly matched the synodic period of Venus). Romulus, mythological founder of Rome, instituted a 10-month calendar, says Ovid (de Grazia). There is also a claim by Roman historians, however, that the second king of Rome, Numa, added two months, January and February, at the end of the ten-month civil year, whose original names ended in October, November, and December, which translate as eighth, ninth, and tenth.

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Note 39 --

See "Of The Moon And Mars, The Origins Of The Lunar Sinuous Rilles" Ralph E. Juergens, Published in *Pensee Journal*, 1974, in two parts and available locally as [\[Part One\]](#) and [\[Part Two\]](#)



[Image: Plasma contacts between Mars and the Moon, 8th century, BC. Illustration from Ralph E. Juergens, "Of The Moon And Mars," in *Pensee Journal* (1974).]

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Note 40 --

There is a clear reference to the Olympic Games in the *Iliad*, about a chariot race, recounted by Nestor, which was recognized as an anachronism by the Greek editors in the sixth century BC. This anachronism, one of a number of instances, would date the authorship to after 680 BC, when chariot racing was added.

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Note 41 --

Despite the universal use of the ballgame by many diverse societies in Mesoamerica over a 2200-year time span, we do not have a single description of how it was played. It was banned by the invading Spanish. All the information which has been gathered is inferential.

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Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.017+ and deg=57.2+; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Chapter 24: The Tablets of Ammizaduga.

\$Revision: 42.3 \$ (bolt.php)

Contents of this chapter: [\[The Tablets of Ammizaduga\]](#) [\[The Golden Throne\]](#) [\[The Blazing Star\]](#) [\[The Bolt from Jupiter\]](#) [\[The Planets in the Sky\]](#) [\[The Twins\]](#) [\[The Last Changes\]](#) [\[Endnotes\]](#)

For such significant events as described in the previous chapter, we have surprisingly few accurate written records. From Mesoamerica we have the story that Quetzalcoatl set himself on fire. We do have dates from late Maya sources (the *Books of the Chilam Balam*), which can be verified against the alignments of Mesoamerican ceremonial centers (detailed in the chapter "Olmec Alignments"). Other than that we have the Phaethon legend from the Mediterranean and a few other curious documents. I'll discuss calendar dates in the year of this event later in this chapter. First I need to establish the year.

The Tablets of Ammizaduga

Among Mesopotamian sources we have, almost as a coincidence, the most curious and frequently misread, *Venus Tablets of Ammizaduga* -- a 21-year Babylonian record of the appearances and disappearances of Venus. Velikovsky had used the information from the *Venus Tablets of Ammizaduga* to demonstrate the erratic behavior of Venus in the era of the Exodus of Moses in 1492 BC. The *Venus Tablets of Ammizaduga* have traditionally been assigned to 1900 to 1000 BC. But an investigation by Lynn Rose and Raymond Vaughan in 1974 (and through 1980) determined that the *Venus Tablets of Ammizaduga* belonged to the 7th century BC, as others have also suggested earlier. Additionally, despite claims that the tablets represent completely confusing and erroneous data, Rose and Vaughan revealed the data for Venus to be inherently consistent.

The *Venus Tablets of Ammizaduga* are clay tablets found in the library of Assurbanipal of Nineveh, which burned down in 612 BC. Some 20 copies have been found (including some at other locations). Assurbanipal was a king of Assyria, the grandson of Sennacherib, and a collector of ancient literature. The tablets record the first and last visibility of Venus in the east and in the west,

what we today call the disappearance before showing up as the Morning Star or the Evening Star. It is important to realize that the tablets record when Venus disappeared and when it reappeared -- nothing else. They read (for example), "Venus disappeared in the east on ... remained absent ... months and ... days and reappeared in the west on... ." [\[note 1\]](#)

Dating these tablets has been a problem. The only clue has been an insertion on a line of the tablet which should show the record of the second half of the cycle of year 8 (year 9 of my tabulation). "Venus was not observed for a period of nine months and four days." The data is missing and instead we find the words "The Golden Throne." [\[note 2\]](#)

"... this phrase meant 'year of the golden throne' ... a year-formula that had been used to refer to the eighth year of the reign of Ammizaduga [what an amazing coincidence], the next-to-last king during the first Babylonian dynasty [circa 1500 or 1900 BC]. ... it is located in the space that would originally have contained the rest of the observational material for the eighth year [the 9th year as shown on my tabulations]. As it is now, we have only the date of Venus's disappearance [in the east], not the interval of invisibility and not the data of reappearance [in the west]."

-- Lynn Rose and Raymond Vaughan, Kronia Conference, Portland, (1994)

The tablets are at times dismissed as "omen tablets" because the data for each year are annotated with what is thought to be omen information, like "... and there is war in the east" or, "the harvest is good." But omens traditionally read as "if-then phrases," like, "if earthquakes last all day, then there will be destruction in the land." The *Venus Tablets* do not read like this. Of course there are also problems distinguishing tenses, but the few I have seen read like contemporaneous observations.

Separate tablets have small errors of a day or so between them, as if we are looking at a collation of separate observations. But the tablets had to be important. They may have been used in a scribal school, which generally copied only important documents. And they are unique. No other planets were observed closely at that time. The movements of Venus must have been regarded as very significant.

But the biggest problem with the tablets has been the fact that the data -- the times of visibility and invisibility -- do not match the observations of today. That has been very disconcerting to astronomers who expect that the orbits of

the Earth and all the planets have remained the same since the beginnings of the Solar System, 4 billion years ago. If the orbits had always remained the same, the risings and settings of Venus could be calculated back to the eighth century BC or even earlier, but backwards calculations do not match the Babylonian data for Venus. This is disconcerting because the same Babylonians plotted the stars accurately to within a few seconds of a degree, measured the length of each day of movement of the Sun against the stars during the year, kept detailed records of the travels of other planets, knew the length of the year to within 20 minutes, and could measure the latitude of cities to within a fraction of a degree. Something was wrong. [\[note 3\]](#)

The *Tablets of Ammizaduga* have been investigated and discussed in archaeological and astronomical literature repeatedly since AD 1865. A number of these studies held that the data was in error, or suggested that it was made up. The studies all assumed that the orbits of Venus and Earth were nearly perfect circles in the past, as they are today.

From 1974 through 1980 the tablets were investigated again by Lynn Rose and Raymond Vaughan, but without the bias of academic astronomy which, over a century of investigations, had simply removed data which did not fit (variously reported on in *Kronos* in 1980).

Rose and Vaughan hold the data to be from the eighth century BC, not from the reign of Ammizaduga nearly a thousand years earlier as had previously been assumed, although exact dates were not determined. (However, I *did* determine the exact dates, for which see further below.) Rose and Vaughan used the fact that the orbits of Venus and Earth did not intersect. This was an unneeded assumption based on the "collision" of planets proposed by Velikovsky in *Worlds in Collision* which could be dropped.

Schiaparelli in 1906 also dated the tablets to the 8th century BC, but based on mention of an invading Asiatic tribe which could be dated to the eighth century BC.

What Rose and Vaughan did was to normalize the data with respect to planetary orbital eccentricities. (Eccentricity is a measure of how much an orbit deviates from the circular.) That process removed the variations in actual day counts, yielding dimensionless units related to planetary eccentricities. In "normalized" form, the data tells very little about actual orbits, but it does tell of changes in eccentricities, and changes in perihelion. There is a change in the perihelion of

the Earth's orbit after year 9 (year 10 and later), and a rather radical change in the eccentricity of Earth (from 0.10 to 0.0) after year 19.

Normalized, the data looks little different from today's observations. The large remaining discrepancy is the missing second part of the data of year 8, and the insertion of the phrase "The Golden Throne." [\[note 4\]](#)

The Golden Throne

I think the tablets record planetary events following the destruction of the temple of Marduk at Babylon in 689 BC, and its subsequent restoration in 680 BC. To point up the disruptions of the seventh century, Velikovsky had written that Babylon "did not celebrate New Year's day for a twenty year period" from 687 BC to 669 or 667 BC. "Eight years under Sennacherib, twelve years under Esarhaddon," Velikovsky quoted from the records from Nineveh, a sum of twenty years. He fit this period to what he thought to be the Earth shock of 687 BC as the starting date and the death of Esarhaddon in 668 BC as the end date -- also a difference of twenty years. However, it adds up to 21 years if different end points are counted -- 689 BC, the destruction of the temple at Babylon, instead of 687 BC (the second shock to Earth), through 668 BC, the crowning of a new king of Babylon. Velikovsky never connected the 20-year hiatus of New Year celebrations with the 21-year record of the Venus tablets which he had quoted earlier in his book.

Additionally, Velikovsky does not mention that Babylon, occupied by Elam, was destroyed under an Assyrian siege in 689 BC, the temple compounds at the center were razed and left unoccupied for eight years, and not rebuilt until 680 BC. No wonder there were no New Year celebrations.

In about 695 BC, Sennacherib, king of Assyria, who later lost an army in the siege of Jerusalem (686 BC), had attacked the kingdom of Elam on the Persian Gulf, by sending ships and troops down the Tigris river from Syria. Elam, although an Iranian nation, at that time held most of Babylonia (Mesopotamia) from south of the city of Babylon to the Persian Gulf. Elam struck back with an overland expedition which took the city of Babylon from Assyrian control.

By 693 BC the Assyrian army had made its way back north to Assyria, having defeated the Elamites (in six campaigns) throughout Babylonia, except for the city of Babylon. Sennacherib spent the next 4 years on other punitive

expeditions throughout the Assyrian empire, and finally in 689 attacked Babylon, then still held by the Elamites.

Babylon was taken and sacked. Some 60,000 lives were lost in the siege, according to the records of Sennacherib. The city fortifications were destroyed and the temple compounds leveled. The God Marduk was removed to Ashur in Assyria. A canal off the Euphrates was rerouted to flood the central area of the city. The center of Babylon, where the temple had been, stood empty for eight years.

Babylon had become important a thousand years earlier, in the time of Hammurabi (circa 1700 BC, in revised chronology), and, although at different times it was under the rule of different tribes, Babylon represented all of Mesopotamia. The whole region, once known as Akkad and Sumer, had become known as "Babylonia." The city God of Babylon, Marduk, had become the "King of the Gods," replacing the much older Mesopotamian God Enlil of Nippur as the region-wide God who would approve kingships and settle border disputes. Marduk had originally been a god of thunder and lightning, and can be identified with Jupiter.

Kingship in Mesopotamia had been secular since the very beginning and the concept of a "King of the Gods" was an attempt by the priesthood to impose some control over the city-states of Mesopotamia and their individual kings. The priests of Enlil at Nippur had attempted to gain control over the kings of the individual cities at an earlier time. When Hammurabi unified the country after circa 1700 BC and made Babylon the most important city, the priests again saw an opening. They elevated Marduk to the status of a region-wide God and wrote a new creation epic, the *Enuma Elish*, around the exploits of Marduk -- based on the celestial events of 2349 BC (the fall of the Absu).

At the time of Sennacherib, Marduk had been the primary God of Mesopotamia for a thousand years. He was recognized throughout Babylonian Mesopotamia, in Elam in the south, and even in Assyria in the north. Even later, Cyrus, the Persian, paid homage to Marduk when he took Babylon in 539 BC. All the Gods of Mesopotamia came to Babylon ("The Gate of the Gods") to honor Marduk, reminiscent of the state councils often employed by the earlier earthly kings of Sumer and Akkad. The *Enuma Elish* related this new theogony, with Marduk even elevated as Creator God. On New Year's day (Spring Equinox) the *Enuma Elish* was recited at the temple of Marduk. The celebration of New Year was the

most important festival of Babylon, in which the king himself participated, playing the role of Marduk.

Sennacherib's very long struggle against the Elamites, and his failures at Jerusalem three years later, added to his growing unpopularity among the Assyrians. His kingdom apparently suffered from crop failures also. His removal of Marduk from Babylon was seen as the cause of his misfortunes.

"Even many Assyrians were indignant at this, believing that the Babylonian God Marduk must be grievously offended at the destruction of the temple and the carrying off of his image."

-- *Encyclopaedia Britannica*, 15th edition

Attempts were made by the Assyrian court to rewrite the *Enuma Elish* to show Marduk at fault. The politics came to a head in 681 BC. There was a revolt and Sennacherib was killed by two of his sons. The two sons had to flee the country and were pursued by Esarhaddon, the son of Sennacherib's surviving wife. He was subsequently crowned as King.

Esarhaddon immediately made amends for his father's behavior and in 680 BC rebuilt Babylon and the temple compounds, although the statue of Marduk remained in Ashur. He continued to maintain good relations with Babylon, spending part of the year there, but calling himself only the "Governor of Babylon." In 677 BC he installed one of his own sons, Shamash-shum-ukin, as Crown Prince of Babylon, but the prince did not assume kingship of Babylon during Esarhaddon's lifetime. [\[note 5\]](#)

Esarhaddon spends the remainder of his reign maintaining his father's kingdom. He worried much about his failing health and, at times of impending lunar eclipses, installed temporary substitute kings of Assyria so the Gods could not find him. Esarhaddon died in 669 BC while on a punitive expedition to Egypt, which was then again in revolt.

In 668 BC his third son, Assurbanipal, took the crown of Assyria and Shamash-shum-ukin was crowned king of Babylon. In the following year the Babylonian New Year festival was again celebrated. The statue of Marduk had been returned. It had been twenty-one years since the destruction of the temple. It is in Assurbanipal's archives at Nineveh that the *Venus Tablets of Ammizaduga* were found 2500 years later. [\[note 6\]](#)

There is a remarkable coincidence between the 21 years of observations recorded by the *Venus Tablets of Ammizaduga* and the 21 years without a New Year celebration in Babylon. If we place the end points of the 21 year record at the beginning and end of the period when no New Year celebrations happen in Babylon, then the year of "The Golden Throne" falls in 680 BC, the year the temple of Marduk was rebuilt.

It was the phrase, "The Year of the Golden Throne," which caused the initial researchers of the 19th century to date the tablets to 1900 or 1500 BC. However, what the insertion "The Golden Throne" strongly reminds me of is not Ammizaduga, a minor king in the declining days of the First Babylonian empire in 1500 BC, but the "Lowering of Kingship" at the start of time before the flood and again with the first king after the flood. As always, the Mesopotamians look backwards to the beginnings. [\[note 7\]](#)

"After the ... [missing text] ... of kingship had descended from heaven, after the exalted crown and throne of kingship had descended from heaven, the divine rites and the exalted powers were perfected, the bricks of the cities were laid in holy places ... "etc.

-- Ziudsura tablets, segment B, (some parts missing) circa 2700 BC.

To the Babylonians the rebuilding of the temple of Marduk must have seemed like the "Kingship of God" had again descended to Earth, and in the same manner as at the beginning of time. Most likely the Venus data was compiled to these tablets for the sole purpose of declaring how the "Kingship of God" had returned to Babylon by the will of the Gods. The data for Venus was used because the sudden blazing of Venus in 680 BC (astronomical year -685) clearly declared the event.

The beginning point of the Venus Tablets follows the destruction of the temple precincts by Sennacherib in 689 BC. A central panel which recorded the phrase "The Golden Throne" corresponds to the rebuilding of the temple in 680 BC. The end point of the data follows the coronation of Shamash-shum-ukin as king of Babylon in 668 BC following the return of Marduk.

The long delay in celebrating the New Year was due to the fact that there was no acknowledged king of Babylon until Shamash-shum-ukin was crowned and because Marduk was missing. Esarhaddon, son of Sennacherib, had taken the title of "Governor of Babylon," for political reasons, and his son had remained

the "Crown Prince of Babylon." Only after 668 BC was there again a "King of Babylon." [\[note 8\]](#)

The Blazing Star

What was the year of the Golden Throne like? The account from Mesoamerica, that Quetzalcoatl "set himself on fire," suggests an absolutely astounding sight. After having set in the east early in the year and a month late (I'm not certain what calendar month), as noted by Rose and Vaughan, Venus became visible after having passed from behind the Sun and started to appear in the day sky, following the Sun across the sky for some 60 days, blazing for 40 days, together with Mercury which suddenly became visible in the daytime sky. It was as if Venus was on fire, an apparition as bright as the Sun, climbing up with the Sun on rising in the east, blazing through the day skies, initially trailing the Sun and progressively moving away from the Sun, until it "lit up the western night sky" at dusk after the Sun had set.

Normally after disappearing in front of the Sun in the west, Venus remains out of view, caught in the glare of the Sun, for about 8 days. After disappearing behind the Sun in the east, however, Venus remains invisible for an extended period of time. This is both because of a longer path it has to travel behind the Sun, and because the Earth keeps moving, making the disappearance even longer. Today Venus remains hidden for about 50 days (it varies somewhat with the inclination of its orbit). At the time of the *Venus Tablets of Ammizaduga* it varied wildly and inexplicably. Velikovsky quotes some figures from the *Venus Tablets* which range from 2 months to 9 months. Even the passage in front of the Sun is at times far too long. But, with both the Earth and Venus on elliptical orbits, this is to be expected. Under the concept that the orbits of Earth and Venus were the same in the 7th century BC as today, this becomes inexplicable. Records from Hindu sources apparently concerning the same dates show the same inexplicable variation -- the *Panchasiddhantika* tables, transcribed 200 years later and published in AD 600. There are Egyptian data also concerning the changes in the sky (the *Ramesside Star Tables*).

Today Venus is on a nearly circular orbit. We do not know when the orbit changed, for over the next 1000 years, the Babylonians had stopped looking, the Europeans had no interest, and the Arabs had not started observations yet. Only in Mesoamerica were observations made. These show up in the *Maya Dresden Codex*, a 13th-century AD document which uses observational values dating to

AD 700. The *Dresden Codex* lists the disappearance of Venus behind the Sun as lasting 90 days, not the 50 days of today.

Venus extinguished, I suspect, by July 26th of 685 BC. Its coma and tail may have disappeared somewhat later. No record was made of its disappearance in front of the Sun because Venus indeed did not disappear in the west (expected in December), but rode through the skies above the Sun by a large amount, about 8 degrees. This is not an unusual condition, but it is a very large amount. Venus in this instance went almost directly from being visible in the west as the Sun was setting to being seen in the east as the Sun was rising -- without the 8 days of hiding in the glare of the Sun. For a few days it was seen both in the west after sunset, and in the east before sunset. Rose and Vaughan did not take the altitude of Venus into account, as a matter of keeping their model reasonably simple. [\[note 9\]](#)

Sources describing the blazing of Venus abound, although most cannot be dated. In a Greek "legend" Phaethon (Phaëthon), the planet Mercury, borrows the chariot of his father the Sun and goes on an uncontrollable ride through the sky. His ride ends when he is struck by a thunderbolt from Jupiter (Zeus) and placed in the sky as the Morning Star. Augustine notes the same as a secondary recollection from other sources, relative to Venus. Being changed to the "Morning Star" is a confusing concept, for this is usually understood to be a condition of the planet Venus, although even today Venus can be seen traversing all of the sky during daylight hours. But with Mercury placed on an orbit much closer to the Sun, so that it would show as the Morning Star for about a half hour before sunrise (when not seen as the "Evening Star"), it would make more sense for Mercury to be called the "Morning Star." [\[note 10\]](#)

Once we understand the stupendous eruption of 680 BC (685 BC), we should be able to recognize other mentions of this event. As a matter of fact, Isaiah, who had asked, "How art thou fallen from heaven, O Lucifer, son of the morning!" continues on with:

"For thou hast said in thy heart, I will ascend into heaven, I will exalt my throne above the stars of God"

-- Isaiah 14:12-13

Isaiah does not recognize Venus (Lucifer) as a deity, but only as a self-willed animate phenomenon. But it seems likely that he is addressing Mercury, "son of the morning," as Hesiod also called Mercury, even though this condition was

only a year old in 685 BC. His text recognizes that the apparition rose high in the sky (as also noted by other sources) and expresses his contempt for a spirit who would rival God by setting up a throne above the stars. These lines would have been written after 680 BC (in Eastern Mediterranean chronology).

Here is Ezekiel's vision, which may have been recalled from an earlier account. Ezekiel lived a generation later, during the time of the Israelites' captivity in Babylon, 597 BC -- 536 BC:

"... upon the throne, a form in human likeness. I saw what might have been brass glowing like fire in a furnace from the waist upwards; and from the waist downwards I saw what looked like fire with encircling radiance. Like a rainbow in the clouds on a rainy day was the sight of that encircling radiance; it was like the appearance of the glory of the Lord. When I saw this I threw myself on my face...."

-- Ezekiel 1:27-28

I should add a note about the "Golden Throne." A "throne" in antiquity is not the high-backed armchair we think of. It is, after all, a coma and plasma tail we are looking at. It would perhaps look like the presentation of the mountain of Horus between 3100 BC and 2700 BC -- a vertical section of a truncated cone in profile and perhaps with distinct legs, depending on how the Sun illuminated the coma and the plasma outpouring.

Because Venus orbits between the Earth and the Sun, for part of the time when Venus appeared close to the Sun, the plasma tail would be directed toward Earth, and foreshortened, and the planet with its plasma would have looked more like an inverted bucket than a blazing ball with a tail stretching halfway across the sky. The rationalization of the image, of course, depends entirely on expectations. Once you see a throne in the celestial display, it will remain a throne through any amount of distortion.

The Persian Zend-Avesta (written contemporaneously, or within a generation) is filled with offers of supplication and sacrifices to Tristrya (Venus), and also evokes an image of light similar to Isaiah's text: [\[note 11\]](#)

"For ten nights ... Tishtrya, the bright and glorious star, mingles his shape with light, moving in the shape of ... [a boy, a bull, a horse]". [this phrasing is repeated three times]

"We sacrifice unto Tishtrya, the bright and glorious star who from the shining east moves along his long winding path, along the path made by the Gods."

-- *Zend-Avesta* II, "Khorda Avesta" Section 8, "Tishtar Yasht" James Darmesteter, translator (1880)

The description matches what we would expect. At this time, when Venus was still regularly seen in the daytime skies, the "long winding path" describes the loop traveled by Venus around the Sun in the daytime. This would loop and advance to the west over the course of some months. It is "long" because Venus extends some 40 degrees from the Sun as seen from Earth. The "path made by the Gods" is of course the ecliptic. Despite the "winding path" Venus stayed mostly near the ecliptic.

The ten nights (actually, days) are repeated for three different shapes. This is a total of thirty days. In the "Khorda Avesta," after a lapse of 30 days, Tishtrya engages a demon in battle, but loses during the first three days. An appeal is made to Ahura Mazda [Jupiter] for intervention -- a sacrifice to give Tishtrya strength. This happens, and on the last day, Tishtrya proves stronger. Thirty-four days have passed (there may be additional days at the end of the hymn). The time span is close to being correct. I will get back to this. [\[note 12\]](#)

There are similar descriptions of a blazing apparition among Hindu sources, describing it as a "horse without hips." Assurbanipal, the king of Assyria who reinstalled Marduk to the temple at Babylon, also witnessed the event, and wrote about Ishtar (Venus):

"... who is clothed with fire and bears aloft a crown of awful splendor, raining fire over Arabia."

The "raining fire" is noted in a number of other contemporaneous and later sources. It is the "Ignis Coelis" which will continue to fall sporadically on regions of Earth far into the future.

With this display in the sky in 685 BC, we should find similar activities among humans -- as ever in imitation of the spectacle in the skies. And we do. There are two recorded instances, dated to the seventh century, of kings in Western Anatolia committing suicide in their burning palaces -- Rusas I of Urarta, and Midas of the Phrygians, both after attacks by the Cimmerians. In Mesopotamia we have two Assyrian kings who are reported to have gone up in the smoke of

their besieged palaces -- Shamash-shum-ukin in 648 BC, after a three-year siege of Babylon by his brother Assurbanipal, and Sin-shar-ishkun in 611 BC, after a siege by the Medes under Cyaxares. Ussher writes about Shamash-shum-ukin (under the identity of Sardanapalus):

"... he made a huge pile of wood in his palace court and set it on fire, which burned himself, his concubines, his eunuchs and all his riches. The palace itself was also burned to ashes."

-- James Ussher *The Annals of The World* (1650)

Croesus is reputed to also have been burned to death when Sardis was taken by Cyrus in 546 BC, although Herodotus has it that he was taken prisoner by the Persians.

As always, a touch of the supernatural is added to history. I have not found earlier instances of this, except as detailed below.

In China the last emperor of the Shang dynasty is said to have similarly set himself on fire. The Shang ends in 1125 BC, but the report is from the Chou dynasty, and may be apocryphal, in which case I would presume it was created by the Chi or Eastern Chou, and dated after the eighth century BC, when extensive historical records first appear.

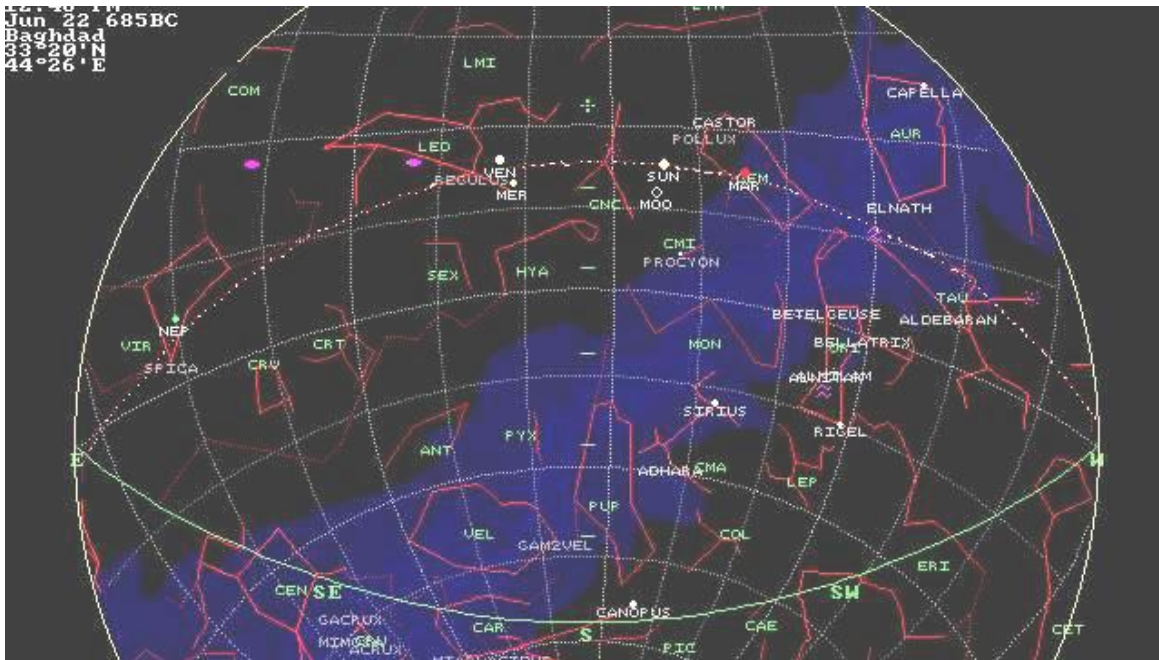
Lastly, Hercules of Greek and Roman mythology, who represents an earlier Mars (before 2800 BC) and especially the destructive visits by Mars in the 7th and 8th century BC, similarly sought deification through self-immolation. [\[note 13\]](#)

The Bolt from Jupiter

Having established the year of these events (-685 astronomical), I should at this point indicate the likely dates, the sources for which I will discuss in the next chapter in more detail. The following seems the most likely sequence of events for the year 685 BC. I'll embellish the chronology with some quotations from various sources, which I will cover in more detail later.

- In spring of the previous year Mercury made electric contact with Earth (a shock), which may have changed the shape of Earth's orbit, and radically altered Mercury's orbit. (But Rose and Vaughan did not detect a change for Earth until the following year.)

- Mercury may have altered Venus's orbit, for it would have passed Venus much closer at least twice. At the end of the year Venus disappears behind the Sun some 30 days early from what was expected, as Rose and Vaughan have noted. This has to be seen as a change in ellipticity, for the orbital period apparently remained the same. (Rose and Vaughan, however, did not detect a change.)
- On June 15 (Gregorian equivalent) the Sun went into high activity, for a one-and-a-half-month-long series of continual Coronal Mass Ejections (CMEs), hurling billions of tons of material, mostly as protons, into the surrounding space. It caused unusual auroras on Earth, would reinstate the polar plasma columns, but would not change its orbit, except that the polar axis would start to incline to a different value.
- On June 15 the Olmecs note that the Sun was not setting in the proper location. "It changed its path," states the *Chilam Balam*. This condition would last for some 40 days, through July 25th.
- On June 15, a day of the new Moon, Venus and Mercury, located close together in the sky and east of the Sun and Moon, started to blaze like suns. "Two suns were seen battling in the sky," China records. Franz Xavier Kugler, interpreting the *Sibylline Oracle Books* of AD 115, which retells the same display seen in the skies (but written about 800 years later), assumes the Earth was met with two large blazing comets.
- Since Mercury was likely invisible in the daylight sky until it also started to blaze like Venus, it looked as if Venus gave birth to Mercury, who is called Phaethon in the Eastern Mediterranean. Because of the spikes of flames reaching across the sky, and with a later knowledge that Phaethon was the planet Mercury, Roman philosophers later developed a theory that comets are produced when two planets clash in the sky.
- Because Mercury in the role of Phaethon was obviously new, and probably smaller than the blazing Venus, another theory (or myth) developed that Venus (here as Aphrodite) had taken a young boy as a lover, and soon destroyed him with a blast of fire, a thunderbolt. Hesiod mentions the first, but not the second. [\[note 14\]](#)



[Image: Daytime sky at noon, June 22, 685 BC. From SkyGlobe 3.6.]

In the Guatemalan *Popol Vuh*, Hunahpu and Xbalanque, Venus and Mercury, sacrifice themselves in order to defeat the lords of the Underworld, and start creation.

"Watch! they said, then they faced each other. They grabbed each other by the hands and went head first into the oven."

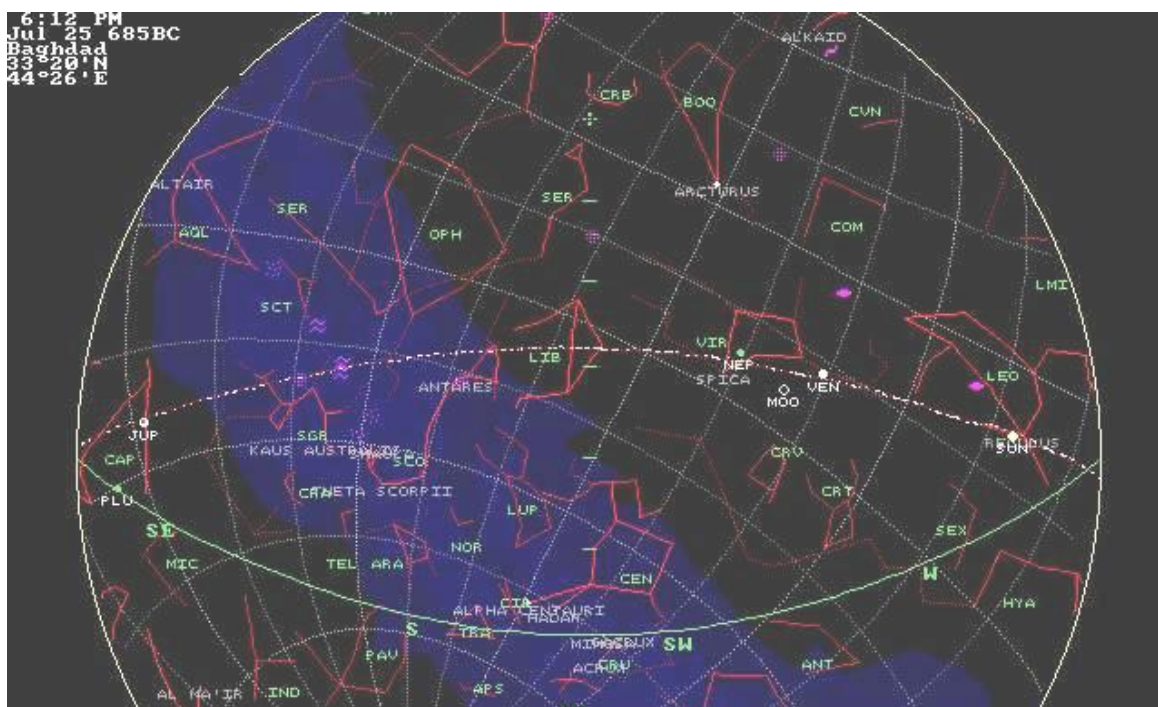
-- *Popol Vuh*

It is this phrasing from the *Popol Vuh* which allowed me to pinpoint the starting date of this event. Dennis Tedlock, translator of the *Popol Vuh*, inadvertently pointed this out when he proposed that there should be a relationship between Hunahpu and Xbalanque and the Sun and Moon.

- Immediately after June 15, Mercury, on a much smaller orbit than Venus, starts to reapproach the Sun, and passes in front of the Sun and on toward its west side on about July 9th. The *Sibylline Oracle Books* recall the movements of the Sun and the two planets during the 40-day period. I'll discuss this in the chapter "The Sibylline Star Wars."
- Jupiter also received the plasma outpouring of the Sun, but because of its much larger size and much further away, did not flash into a visible coma immediately. Jupiter switched to a glow mode on July 9th, producing a

large coma, a three-pronged plume at its north (upper) pole and a gigantic split outpouring at its south pole (which is its magnetic north pole) -- recalled in the *Chilam Balam* and graphically recorded by the Olmecs at La Venta. In fact, on this date, the Sun, Mercury, Earth, and Jupiter were all in line. (At this time Mars was almost directly behind the Sun, and Venus was at a right angle to the lineup.)

- On July 14th Jupiter responded with a return lightning stroke, directed at the Sun. A massive plasmoid was released, seen and recorded worldwide. Its travel was followed for 11 days. Asia and Europe saw the plasmoid as it was approaching. The people of the Americas got a full broadside view of the plasmoid as it passed by Earth at a distance of some 30 million miles (48 million km).



[Image: Late afternoon sky July 25, 685 BC. A south by southwest view to show Jupiter and the Sun. The travel path of the plasmoid followed the ecliptic, and it may have looked as if Venus was hit. From SkyGlobe 3.6.]

On July 25th the plasmoid hit the Sun. The people of the Eastern Mediterranean saw the plasmoid again after it had passed by Earth but only saw it in the early morning (two days later), or saw the east horizon light up as it landed at the Sun, and assumed that Mercury (Phaethon), which preceded the Sun in rising, had been hit -- or that Venus was the target. Mesoamerica saw nothing of the final splashdown, and assumed that the lightning bolt was meant for Mars, the

nemesis during this period, located just west of the Sun in the sky. But here, too, some opinions held that Venus had been hit.

The lightning bolt from Jupiter was, as I will show below, 1.5 million miles (2.4 million km) in diameter -- twice the width of the Sun -- and 15 million miles (24 million km) long. It would have taken some 9 hours to complete the landing at the Sun. It would have lit up both the day and night sky. The *Popol Vuh* suggests that the planets near the Sun, Venus and Mercury, were not seen for the next four days.

With that the blazing of Venus and Mercury apparently came to an end. At least, in Mesoamerica July 25 was held as the end of the event. It is possible that the arc mode plasma displays of Venus and Mercury simply diminished, switched to glow mode, and then to dark mode. Jupiter may have continued with its glow mode display longer, since a single spark will not likely "discharge" a massive planet. Apparently there were additional, lesser, plasmoids released by Jupiter. [\[note 15\]](#)

The *Popol Vuh* relates that Hunahpu and Xbalanque, after they jump in the oven of the Xibalbans, are seen by people as catfish in the river where their ashes were deposited. The river is the ecliptic, which was still aglow certainly at this time (it lasted to AD 1840). They "*looked like catfish.*" These are likely the lesser bolts from Jupiter. As will be recalled from Egyptian predynastic history, catfish is an apt description for a plasmoid.

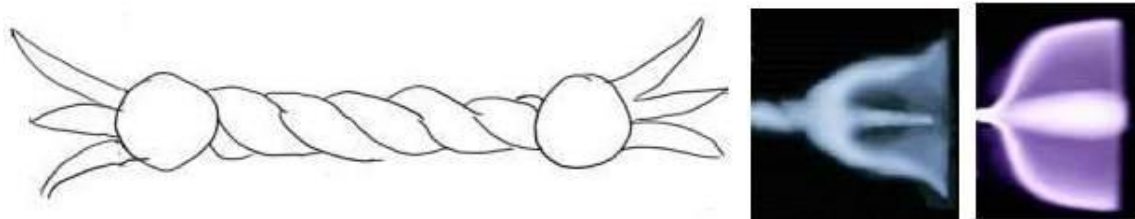
When I first came to a realization of the above events, I simply could not believe it, and was reluctant to put together this narrative. It is absolutely unimaginable that a planet could have bolted its star with an electric arc which had to travel 480,000,000 miles (773,000,000 km) to reach its destination. I was familiar with the plasmoid imagery of Rome and Babylon, as well as the numerous "model plasmoids" in Asia, shown in *Thunderbolts of the Gods* (2005) by David Talbott and Wallace Thornhill. The plasmoids are depicted on coins also. These images were all from late antiquity, none from before 650 BC. That was a troubling fact, for the previous depiction of a plasmoid was nearly 3000 years earlier, the predynastic Egyptian king "Catfish-drill."

I was also familiar with the "rigid bar" insignia of Maya rulers in the Classical Era (AD 400 to AD 900), but it was only when I started to look at the iconography of the Olmec site of La Venta, which can be clearly dated to before 650 BC, that I was forced to accept the fact that I was obviously looking at a depiction of Jupiter in glow mode plasma discharge (easily recognizable

because of Jupiter's reversed magnetic field), and a massive plasmoid lightning bolt shaped exactly like the classical laboratory forms. The sculpted or engraved god-figure is holding the plasmoid in his arms, as all later chiefs among the Maya will be depicted as doing also. At La Venta the first pyramid of Mesoamerica was constructed, called a "red mountain." It is an image which reflects the contemporaneous form seen in the sky at its period of creation and which recalls the much earlier celestial mountain form from thousands of years earlier.

The diverse imagery suddenly came together to explain the connection between what the Greeks considered the "mythological past" and what they and we consider the "modern world."

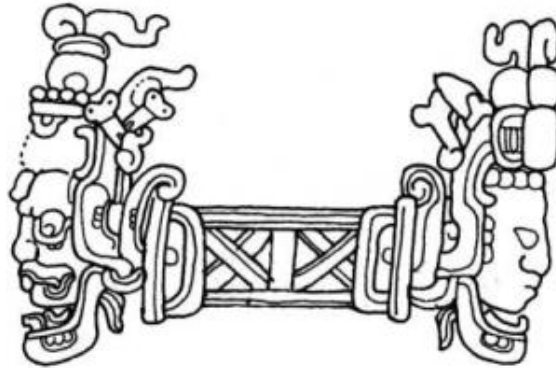
The plasma bolt launched from Jupiter is the "lightning bolt of Zeus" which toppled Phaethon from his father's chariot. The myth of Phaethon is thus the last "mythology" from antiquity. In 685 BC, before releasing the plasmoid, Jupiter must have expanded and again assumed the size of a mountain. The bolt traveled over 480 million miles to the Sun. It is little wonder that Jupiter, despite its diminished visual display since 2150 BC, continued to be held as the chief God everywhere in the world.



[Images: Left: Plasmoid lightning bolt shown in its full extent. Illustration by J. Cook. Right: The end form is based on viewing the denser edge of the cup-like form and a dense central core. After David Talbott and Wallace Thornhill, "Thunderbolts of the Gods" (2005).]

We have to ask how this could have happened. What would normally happen to cause lightning between planets, is that a conductive path has to pre-exist and that the voltage difference has to be sensed. That would happen if the plasmaspheres of two planets touched. Although the existence of a long tail would have furnished the electric path for a return lightning strike, it is just not likely that the plasmasphere tail of Venus (or Earth) would have reached 500 million miles (800 million km) into space, through the Asteroid Belt, to Jupiter. But there is an entirely different condition which fulfills the need for a

conductive media between Jupiter and the Sun, and for sensing the voltage difference.



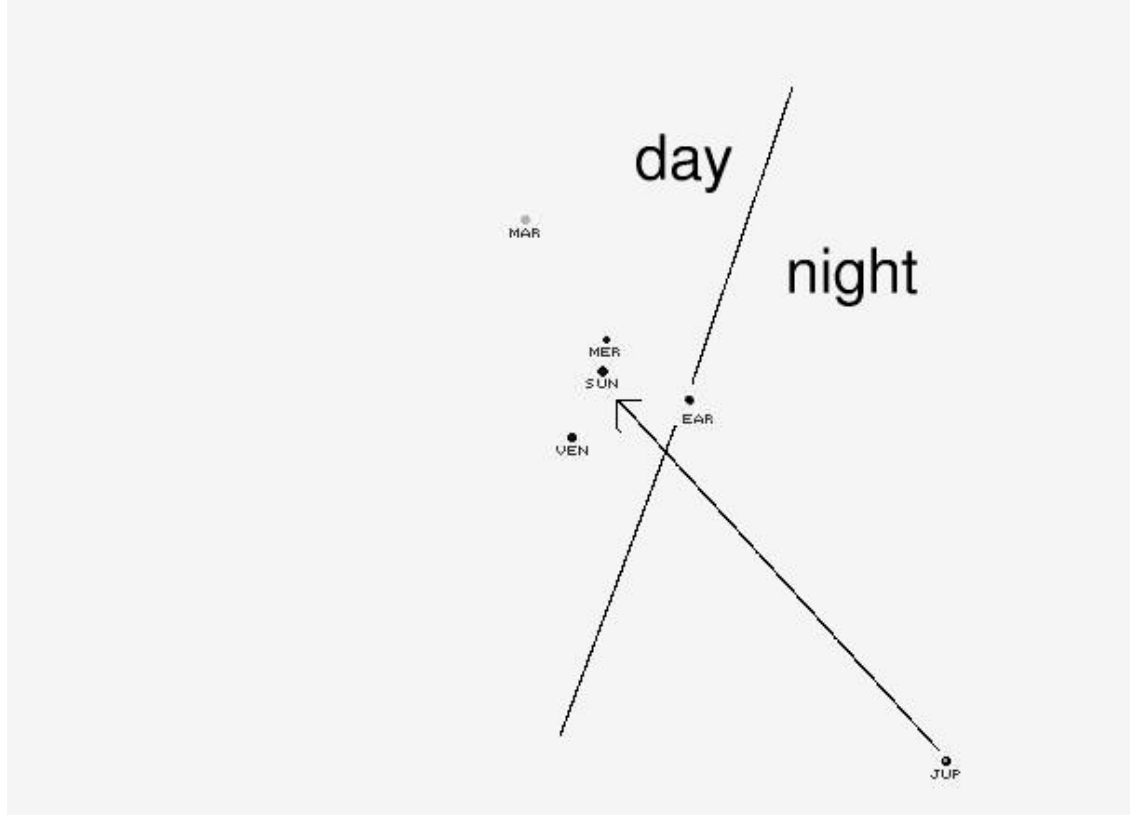
[Image: The Plasmoid lightning bolt depicted as the "Rigid Serpent Bar" in Maya illustrations, meant as a token of office. Two Gods are coming out of the distended mouths of the serpent. The two Saint Andrew's crosses on the body denote the "vernal equinox" and "autumnal equinox" of the ecliptic. After Linda Schele and David Freidel "A Forest of Kings" (1990).]

It already was my suspicion that the "Venus nova event" was in actuality a month-long coronal mass ejection of the Sun. It lit up Venus and Mercury like suns. It was at this time that both planets ended up becoming pockmarked with craters and electric scars. It altered the spin axis of the Earth.

And it provided a highly conductive path between the Sun and the far reaches of space, certainly to the location of Jupiter -- a distance of 5.2 AU. A continuous plasma expulsion of the Sun would extend the high-voltage inversion layer which is normally relatively close to the Sun, far out into space. Rather than having to breach 500 million miles (800 million km) of a very large voltage difference, Jupiter was suddenly in almost direct electric contact with the Sun. The voltage difference between Jupiter and the Sun would be sensed by the plasmasphere of Jupiter which, like those of the other planets, actually travels within the plasmasphere of the Sun.

Earth, Venus, and Mercury were not involved in the bolt from Jupiter. Earth and Venus remained invisible to Jupiter, protected by their own plasmaspheres. Earth and Venus were also well away from the line of fire connecting the Sun and Jupiter.

5:00 PM
Aug 02 685BC
Cairo
30°03'N
31°15'E



[Image: Planets about the Sun, July 26, 685 BC,
seen from "above." Orbital rotation is
counterclockwise. Illustration by J. Cook.]

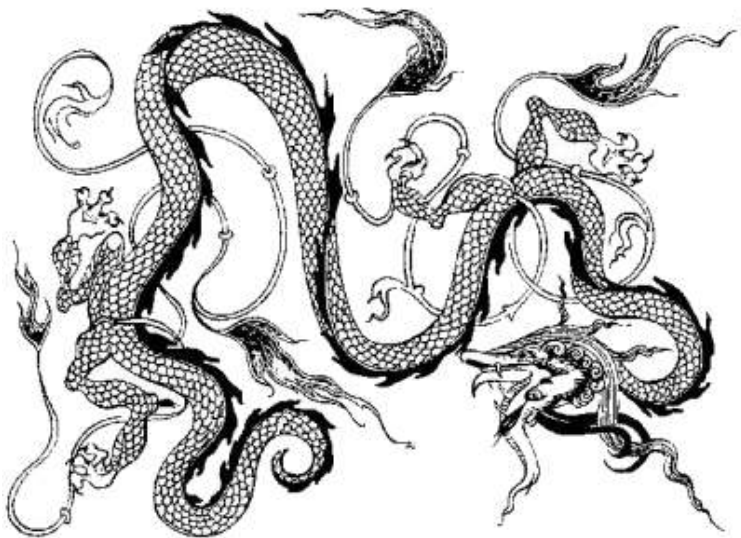
Scaled from the diagram above, it would appear that Earth was some 30 or 40 million miles (48 or 64 million km) from the path of the lightning bolt (at a right angle). The plasmoid from Jupiter aimed directly at the Sun. The people of Earth witnessed the travel of the plasmoid through the night and daytime skies. Even if the bolt was only 1/10th of the diameter of Jupiter, it would have been the diameter of the Earth.

In November of AD 2003 the Sun sent a number of Coronal Mass Ejections (CMEs) into space. These usually travel at a speed of about 2 million miles per hour (3 million km per hr) by the time they reach the Earth's orbit (as does the Solar Wind). The CMEs of 2003 traveled across the 93 million miles (150 million km) between the Sun and Earth in 30 minutes, averaging 200 million miles per hour (320 million km per hr) -- a quarter of the speed of light. There is no reason to believe that the lightning bolt from Jupiter in 685 BC could not

have traveled at a wide range of possible speeds. I'll make a speed and time estimate further below.

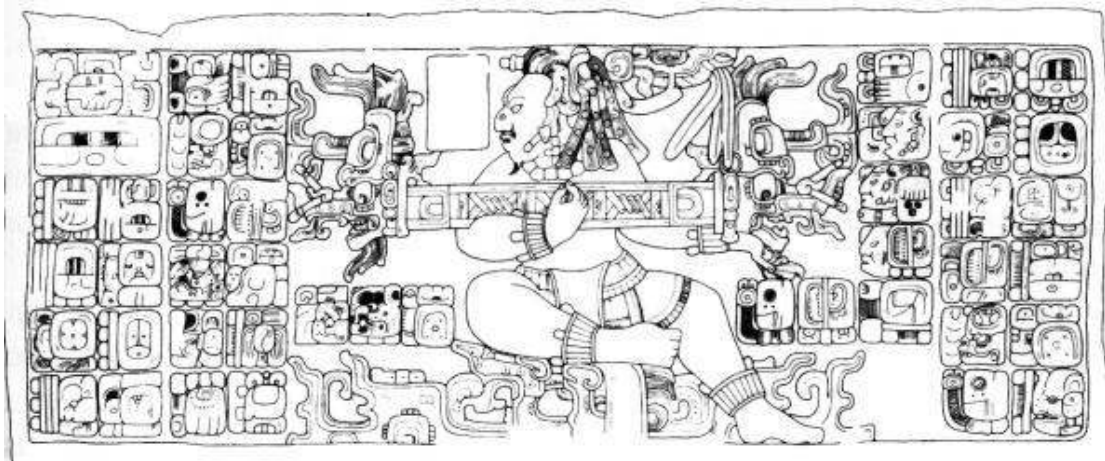
From a comparison of the depictions of plasmoids in Europe and Asia with Mesoamerica, it is clear that Europe and Asia saw the bolt when it was released from Jupiter, saw it travel for 10 or 12 days and entirely missed the plasmoid as it passed closest to Earth. The bolt was traveling 40,000,000 miles per day (64,000,000 km per day), so it would relocate that far between sightings. Mesoamerica had the privilege of seeing the plasmoid pass by Earth during the daytime, visually extended to its full size. [\[note 16\]](#)

The plasmoids depicted in Mesoamerica are therefore much longer than the short hand-held objects depicted in Asia, or the medium sized "thunderbolts" shown in graphics and statuary in the Mediterranean region. The Mesoamerican plasmoid is depicted as carried in the arms of figures and looks to be a five- or six-foot long object.



[Image: Chinese depiction of the dragon. After Ramona Jablonski.]

China earlier, in 2349 BC, had understood plasmoids as dragons approaching from the east, and records dragons in exactly the manner in which the plasmoid was seen in the sky, head first, with an open mouth, long feelers attached to the mouthparts, and what looked like legs attached further away along the body.



[Image: The Plasmoid lightning bolt depicted as the "Rigid Serpent Bar" in Maya illustrations. Two planetary Gods are coming out of the distended mouths of the serpent. After Linda Schele and David Freidel "A Forest of Kings" (1990).]

Mesoamerica also recorded a dragon, but it had no legs. Instead it had heads at both ends of the body, but also with the wide-open mouth and the tendrils attached to the mouth parts as in China. What was understood as rear legs in China, was properly attached parts of the rear mouth of the dragons of the Maya.

Mesoamerican chiefs carry a rigid bar in their arms as an emblem of office, with triple tines at both ends. A bar like this is first shown held by a person (actually the God Jupiter) on stela 2 of La Venta and on a number of engraved dedicatory celts at the same location and period. By the time of the Classical Maya (AD 400 to AD 900), the bar is four times as thick as in Olmec times of 650 BC, and it is conceived of as a tube, a rigid snake, or a dragon with a head at each end. The tines have become mouth and jaw parts of the dragon, and Venus and the Sun are shown emerging from the two mouths.

Short hand-held "model" plasmoids, dating from this era, are found today in Tibet, India, and Japan, nearly identical to European sculptural and mural depictions, but shorter. All of them mostly follow the shape of laboratory plasma discharges: a twisted body with balls at both ends, from which emerge three tines like flower petals.



[Images: Plasmoid models from Tibet, India, Japan. After David Talbott and Wallace Thornhill, "Thunderbolts of the Gods" (2005). Named Vajra in Sanskrit, or Dorji in Tibetan, meaning thunderbolt.]

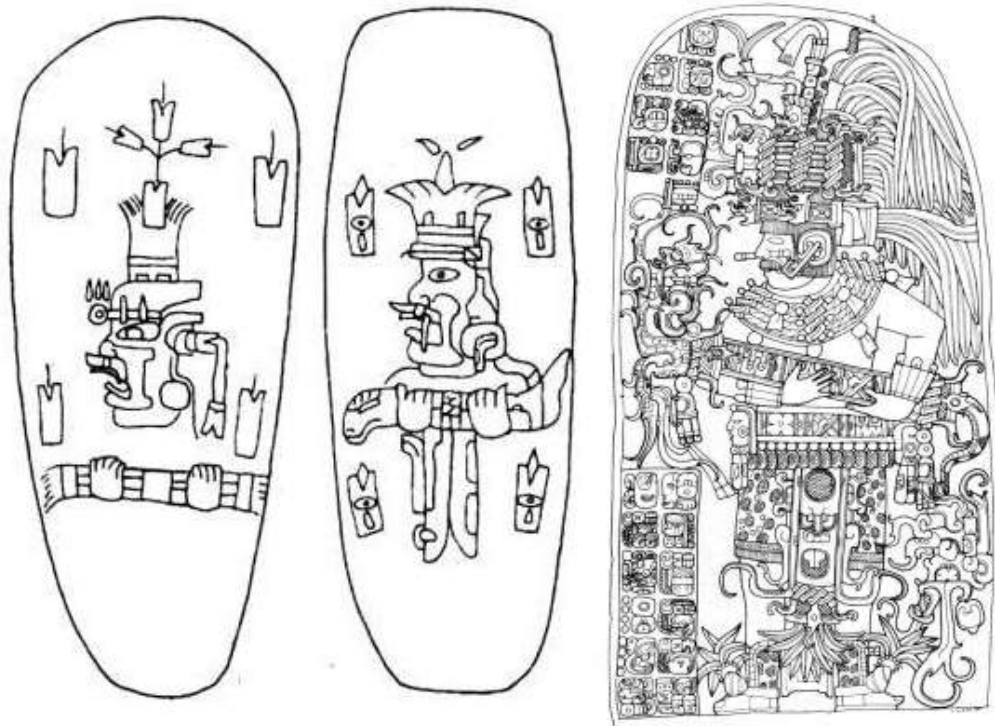
The same triple-tined objects with a twisted center are shown as being held in the hand of Zeus in Roman statues. The trident arrow appears (as the weapon of Marduk) in wall sculptures in Mesopotamia after 600 BC.

The Roman naturalist Pliny, in the first century AD, still discusses lightning bolts from planets, and distinguishes between various types. If the plasmoids had last been seen shortly after the end of the "Era of the Gods" in 3147 BC, it would have been unlikely to suddenly reappear in philosophical discussions during the last few centuries of the previous era to become the object of speculation.



[Images: Short Plasmoid lightning bolt depicted as vase paintings, statues, and murals (Greek, Roman, Babylonian). All dated after circa 600 BC.]

It seems clear that the difference in the images between Asia, Europe, and the Americas is entirely due to seeing this object in different stages of its travel. If Mesoamerica saw the plasmoid bolt in the day sky (with Asia and Europe turned away to the night side of Earth) just as it passed Earth, then the bolt would have been seen in full profile. From this the size can be estimated.



[Images: Left two: Long Plasmoid lightning bolt depicted on two celts from La Venta, circa 650 BC. The second figure, with the crocodile legs, is carrying a bar in the shape of snake or cayman. Right: Stela 11 at Seibal, dated 10.1.0.0, AD 849. After Linda Schele and David Freidel "Maya Cosmos" (1993), and "A Forest of Kings" (1990).]

I would suggest that, as seen from Mesoamerica, it probably subtended an angle of about 30 degrees in the sky -- understood as a five- or six-foot long object held by a God. With the Earth 30 million miles (48 million km) from the path of travel of the plasmoid, it must have been about 15 million miles long (24 million km) ($30,000,000 * \sin(30) = 15,000,000$ miles).

In early depictions in Mesoamerica the object looks to have a diameter of about 1/10th of its length. That would make the lightning bolt 1.5 to 2 million miles (2.5 to 3 million km) in diameter. This is certainly larger by far than the diameter of the planet Jupiter (80,000 miles; 129,000 km), but the plasmasphere of Jupiter, under normal conditions, is on the order of 40 planet diameters, thus 3.2 million miles (5 million km) wide. Plasmoids also tend to shorten on cutting loose from their cathode, and thus thicken.

Mesopotamia and the Eastern Mediterranean saw the plasmoid again as Earth turned back to the day side, but the plasmoid had passed by. Mesopotamia

possibly saw the plasmoid contact the Sun (it would have caused a stupendous brightening in the eastern sky). Mesoamerica probably never saw the plasmoid reach the Sun, which would have required another 30 million miles (48 million km) of travel (about a day of travel), but assumed it was destined for Mars, which stood in the sky just past the Sun in the west (and would rise before the Sun the next day, obscured by the light of the impact).

From these rough estimates it could be suggested that the plasmoid was traveling at a rate of about 20 to 30 million miles per half day -- or 1.5 to 2.5 million miles per hour (2.5 to 4 million km per hr). These estimates are in line with what we know of the solar wind and normal CMEs traveling from the Sun.

How long did it take to travel from Jupiter to the Sun? Assuming that the gradient of the electric field between Jupiter and the Sun was low enough that acceleration during travel could be neglected, and at an average rate of 1.5 to 2.5 million miles per hour, it would take 8 to 13 days.

This is based on $(5.2 * \text{AU}) / (2500000 * 24) = 8.06 \text{ days}$
and $(5.2 * \text{AU}) / (1500000 * 24) = 13.4 \text{ days}$.

The people of Mesoamerica seem to claim it took 12 days. It would thus have been traveling at a rate of $5.2 * \text{AU} / 12 = 40,000,000 \text{ miles per day}$ -- 1.66 million miles per hour.

The Planets in the Sky

During much of the ninth century and a portion of the eighth and seventh century BC (806 BC to 685 BC) the skies of Earth were crowded with unwanted planets. Then, after 685 BC (680 BC in Eastern Mediterranean chronology), they all disappeared.

... Venus

Venus, without a magnetic field, would not likely have produced the tri-lobed plumed headdress shape, but only the tail of its surrounding coma, directed away from the Sun, splitting into two parts which would diverge. This is seen in comets today (which also do not have a magnetic field). Additionally there might have been long wisps of plasma from its polar regions. These would seem to be coherent plasma streams, bent to the direction of the Sun, but not organized into tri-lobed plumes.

In 685 BC Venus brightened enormously, and all of these features, which had been seen for ages, suddenly increased in intensity. Assurbanipal described Ishtar (Venus) as "*... who is clothed with fire and bears aloft a crown of awful splendor.*"

I suspect that Venus lost its tail and perhaps much of its coma, because some time after 685 BC Venus was admitted as a planet in the astronomy of Babylon - it had started to look like a planet. A hundred years later much had been forgotten. No one remembered, or wanted to remember. History was turned into mythology.

... Jupiter

The tri-lobed plasma formation, described above, would appear at the poles of a planet with a magnetic field when in glow mode plasma discharge. Jupiter did this in 685 BC. Jupiter has a very strong, but reversed, magnetic field (ten times that of any other planet), and it produced a three-lobed flower form extending from its north pole above the coma surrounding the planet. The surrounding coma probably looked the size of the Moon.

The same strong magnetic field produced another tri-lobed form, but much larger than the top, at its south geographical pole (the north magnetic pole), making it look as the "body" of the planet, or as a mountain, although, and as noted by the Olmecs, the body looked like the open jaws of a crocodile, the central tongue of which might have been missing or not observed. Crocodiles have only a short tongue.

These features were recorded after 685 BC by the Olmecs on stelae and engraved ceremonial celts. Archaeologists hold that the headdress is to be identified as a corn plant, with two leaves pulled away from an ear of corn. But the figure universally recognized as the "Corn God" in the Classical Maya era does not wear such a hat. The tri-lobed headdress shows up, instead, and from very early times, among the Maya as the "jester hat" of a scepter or headband representing Venus, known among archaeologists as the Jester God. [\[note 17\]](#)



[Images: Left: An Olmec celt, circa 685 BC, Jupiter with the body of a crocodile, holding a cayman. Shown amid the four trees (or flames) of the cardinal directions. Middle: Maya crocodile maize plant with a bird at the top, Izapa stela 25. Right: Maya crocodile tree on a blood offering plate. The left figure probably wears a mask composed of the jawbones of a Jaguar. After Linda Schele and David Freidel "A Forest of Kings" (1990), and "Maya Cosmos" (1993).]

Jupiter in this condition was also identified as the central (or southern) tree of creation, the World Tree of the Maya. The same World Tree is often shown by the Maya with branches and leaves at the top, but with the head of a crocodile as its base at the bottom.

The tri-lobed crown of Jupiter waved back and forth, since the magnetic poles of planets do not coincide with the rotational axis. At a rotational rate of 9 hours, the rotation of Jupiter's tri-lobed plasma outpouring would have been seen as a plant waving in the wind. Jupiter was probably also seen during the day. At Teotihuacan the favored headdress of dignitaries and Gods becomes a hat of feathers and plumes. This fashion carried through for a thousand years to the Maya and the Aztecs.

In the Eastern Mediterranean region the Gods had already taken human form, and the only strange animals depicted as supernatural beings are the demons they battle.

... Mars

In Mesoamerica Mars is often depicted as "smoking" (a cigar) or with a smoking mirror on his forehead. As I have mentioned earlier, the smoking mirror is likely the sublimation of water from the remnant upper ocean. This suggests that at some point in time Mars had lost its atmosphere, but had retained one of its oceans (the smaller ocean is within the confines of the larger polar ocean).

The smoking cigar might be an unshaped plasma discharge, or a plume of impinging electrons brought to arc mode near Mars's surface. But one wonders if the "smoking" represents the lightning bolt suspected to have been delivered by Venus in 776 BC. When Mars is depicted with an axe piercing his forehead, recognition has to be given to some gigantic impact of the past -- probably the electric excavation of Valles Marineris. Olmec sculptures depict Mars with the features of a bat and the snarl of a Jaguar, which might be additional aspects of dust lifted from the surface and shaped by the Earth's magnetic field (when Mars closed in on Earth).

At later times among the Maya, Mars (God K), is depicted with the leg of a snake, which archaeologists have determined is a symbol for lightning. That describes the effect of electric contacts after 806 BC.

An estimate of the number of visits by Mars after 747 BC might be deduced from the religious monuments at Olmec La Venta between 747 BC to about 400 BC. There are, within the confines of the pyramid and adjacent plazas, five elaborate graves (one of the graves is a coffin shaped as a gigantic cayman), five massive offering caches of serpentine blocks, and four colossal stone heads. The first passage of Mars perhaps did not require a stone head. Or it has not yet been found. The three mosaic tiled floors (two were buried) read "9 Jaguar" -- a bar and 4 dots, shaped like a jaguar face with the characteristic forehead cleft -- which in effect equates to the name used in the *Chilam Balam* for Mars, Bolon Dzacab, "Nine Lives."

Except for this repetition of five, along with the four giant heads, there is no clear record of the number of visits. The only additional suggestion comes from

the *Chilam Balam*, which records, after the first mention of the appearance of Bolon Dzacab, Mars, in 747 BC, the descent of four "mighty demon bats."

The best reconstruction by Velikovsky from Biblical sources was to suggest appearances of Mars at 15-year intervals. The 60-year time span of 747 BC to 687 BC represents five visits if they were 15 years apart. This is also the sequence of events in the Quiche Maya *Popol Vuh* -- five ballgames are played in the underworld. However, the number of visits at 15-year intervals between 806 BC and 687 BC is nine.

Despite the coincidence of "nine" in "Nine Lives" and the suggested number of close contacts by Mars, the certainty for the number nine comes from the name of the flower vendor, Bolon Mayel [Nine Fragrances], who is Mercury, and who is said to have accompanied Mars in each instance.

... Mercury

The *Chilam Balam* lists nine close calls by a planet named Nine Fragrances in the eighth and seventh century BC (probably from 806 BC to 687 BC), described as delivering flowers and fragrances. If these were being delivered by Mars, then the "flowers" are curious, because a flower-form (the tri-lobed form) would not be expected for Mars. Nor would the fragrances, for Mars has no atmosphere. This would suggest that the planet called "Nine Fragrances" was Mercury, instead.

Mercury has a minor magnetic field, and still has a strange mix of gases as a thin atmosphere. Likely it had a more extensive atmosphere in the past (before 686 BC).

When the *Popol Vuh* describes the northern Gods after 10,900 BC, Mercury was confused with the later appearance of Venus, and called "Sovereign Plumed Serpent." But very little atmosphere would be needed to create a coma in glow mode.

The fragrances are recorded in Vedic sources also. Velikovsky mentions them, although he assigns them to the era of 1500 BC. The exterior of the plasmasphere of Mercury (the "double layer") would have included gases in ionized forms from its atmosphere. Close passes to Earth would have transferred many of these to Earth's plasmasphere, and eventually to the Earth's atmosphere.

The repeated destructions of sites in Persia, the Middle East, Greece, Italy, and apparently Mesoamerica, together with the identification of Mars, and lamentations about the followers of Mars, would suggest Mars as the main agent of the destructions of the 8th century BC. But the flower forms and the associated fragrances point to Mercury. These are not even mentioned (except for the fragrances) in the Middle East.

What I will suggest is that Mercury had been a companion of Mars since remote antiquity, so that the two would always appear together. I had already considered that Mercury was likely the "other planet" which showed up along with Horus/Mars in the period of 3067 to circa 2700 BC to constitute the twenty-some pharaohs of the first and second dynasty of Egypt and similarly the 20 early kings of Kish in Mesopotamia. The two planets show up along with the "Followers of Horus" and the large quantities of cattle and dead people in the skies which were recorded by the Egyptians in the first and second dynasty. I have also suggested that the "sandal bearer" shown following the pharaoh on the "Palette of Narmer" is not his son, but Mercury.

The "Palette of Narmer" shows the "Followers of Horus" as six papyrus buds led out of the Duat by a nose rope held by Horus the falcon. On the obverse side are the standards of the cardinal directions, followed by a woman with a bola, Narmer as Mars, and Mercury bringing up the rear. Of course it is not certain if Mercury always followed the travel of Mars. But at any rate in the 8th and 7th century Mercury would show up near Mars at each of the 9 instances when Mars cruised close to Earth on 15-year intervals.

The 16th century AD *Chilam Balam* lists "Nine Fragrances" as he who descended when "it was that the word of Bolon Dzacab [Mars] descended to the tip of his tongue."

"With it descended Bolon Mayel [Nine Fragrances]; sweet was his mouth and the tip of his tongue. Sweet were his brains."

The "nine" of the "Nine Fragrances" represents, as these numeric prefixes do throughout the *Chilam Balam*, nine appearances of Mercury. This matches the nine appearances of Mars between 806 BC and 687 BC. By coincidence the nine appearances of Mars is the same number assigned to him before 3147 BC ("this first Bolon Dzacab"). Curiously, the giant jade or greenstone mask-shaped floors at Olmec La Venta, apparently buried as a means of warding off or appeasing Mars, represent the face of a Jaguar in the form of the glyph for "nine," were installed long before the nine close passes of Mars had been completed.

The mouth, tongue, and brains (top of the head?) of Bolon Mayel probably describe the plasma plumes above and below Mercury, and are, as a matter of fact, described in the *Chilam Balam* as flowers.

Today Mercury still has an externally induced magnetic field (it is thought), due to the fact that on its (current) orbit it travels to a distance twice as far from the Sun between perihelion and aphelion. Previous to the 7th century BC, traveling on an orbit which took it well beyond the orbit of Earth, it might have had a much greater magnetic field. Mercury also, gauging from the remaining thin atmosphere, might have held a considerable gaseous envelope, able to support a shaped plasma.

The combined appearances of Mercury and Mars came to an end in 686 BC, when Mercury came close enough to cause an Earth shock and was, as I have supposed, jolted into an orbit much closer to the Sun. The Earth changed the location of its aphelion, as Rose and Vaughan have pointed out (detailed below), inadvertently moving it away from the orbit of Mars.

... Earth

The Earth, another planet with a magnetic field, would, at various times of excess electric activity, also have had the same tri-lobed vortexes standing above the Earth's north and south magnetic poles, and extending perhaps 10 or 20 Earth diameters into space. The plasma above the north magnetic pole would have been larger than the plasma of the south magnetic pole. But the southern plasma was most likely visible also in the northern hemisphere, for the plumes would have bent away from Earth into the tail of the magnetosphere.

It is quite likely that the outer shell would be mostly transparent, and only the central spikes were seen. Alternately, as I have detailed in previous chapters, the plumes rose up as a coherent structure with ball plasmoids at the end and the plant-like wisps (the terminating cup and spike) beyond that. (See also an endnote to the chapter "The Gods Leave," detailing the recent discovery by NASA, in early 2009, of these plumes, in dark mode, and separated as two counter-rotating streams at the northern aurora). A plasma stream above the north and south magnetic poles would answer to the claims of the four trees of the cardinal directions of the Maya, which appeared four times since 3147 BC, according to the *Chilam Balam*. Other Mesoamerican sources claim 8 and 9 appearances for the northern plume. [\[note 18\]](#)

The Twins

The mythological and quasi-historical tales from this era are obsessed with twin celestial Gods. With the Greeks they are the Dioscuri, Castor and Polydeuces (Pollux). Castor is a tamer of horses and mortal, Pollux is a boxer and immortal. Homer places them in Sparta. The Spartans, in fact, hold them to be the younger twin brothers of Helen. (Homer's Helen in this may be equated with Venus.) Both travel with the Argonauts at one time. They steal cattle in Arcadia and drive them east to Sparta. At the conclusion of some fights and pursuits, Zeus kills one of the pursuers with a thunderbolt. This last represents the eruption of Venus and Mercury in 685 BC.

In Italy the twins are the founding patrons of the city of Rome, Romulus and Remus, sons of Mars. This is strange, but then, Rome's historical records were destroyed in antiquity. Remus was killed by Romulus in a dispute. Romulus founded and ruled the city of Rome, and is then taken up into heaven. After 686 BC Mercury had, for all practical purposes, disappeared from the skies.

The constellation Gemini is generally held to be the Dioscuri twins, but Hyginus (in *Astronomica*, attributed to Hyginus, but dated circa AD 200) says the twins are Apollo and Heracles (Mercury and Mars). Santillana and von Dechend mention twin deities of China, and there are without doubt others. Twins would earlier have been needed to populate the realm of the older gods, and the concern with twins may have entered the rewriting of older mythology.

In the *Popol Vuh* two sets of twins are identified, first as One-Hunahpu and Seven-Hunahpu (probably an appearance of 776 BC), and then as Hunahpu and Xbalanque (the five appearances documented in the Long Count for 747 BC and after).

Talbott, in *The Saturn Myth*, notes that almost always one of the twins is white and the other is black. He references not only Greek sources, but also Mesoamerican, Indian, Chinese, and many others. Australia could be added, as well as the *New Testament* apostles James and John -- the Sons of Thunder (Mark 3:17). We could add Cain and Able as an earlier manifestation. Talbott, of course, relates the black and white aspects of the celestial twins back to the polar configuration in the north. But it should be obvious that the white twin is Mercury with a cloud cover of an extensive atmosphere, and the black twin is the dark Mars, with neither an atmosphere nor a coma except as wings of dust.

The two planets only became prominent in the skies of Earth when their orbits intersected the orbit of Earth periodically. This happened in the 8th and 7th century BC, as had happened for a period, 2200 and 1100 years earlier, after 3067 BC and again after 1935 BC. Before that, during the "Era of the Gods," only Mars interacted with Earth. Mercury hung below Saturn, initially very visible when Saturn was blazing, and probably mostly obscured after Saturn quieted down. Despite the fact that Mercury is the smallest planet of the Solar System today (our Moon is smaller), it supported an atmosphere and a coma, which would have made its apparent size much larger than Mars. Together these two would have constituted the iris and pupil of a huge celestial eye.

The Last Changes

There is another very interesting and related consideration arising from the analysis by Rose and Vaughan. They note a change in the aphelion of Earth's orbit in the year immediately following the year of the "Golden Throne" of 685 BC, thus 684 BC. The orbit of the Earth changed its shape, or as Rose and Vaughan note, the Earth's aphelion moved elsewhere in its orbit by 10 or 15 degrees. Probably the most important aspect of the change in aphelion is the fact that it immediately removed the Earth's orbit from further intersections with Mars's orbit, by rotating away from the location where it crossed Mars's orbit.

Moving aphelion by 10 or 15 degrees within the time of a single rotation around the Sun is not a small amount. This clearly is in conflict with any current theories of how orbits might change, which could only happen under the gravitational effects of other planets. Such gravitational tugging is a very small percentage of the effect of the gravity due to the Sun, and would take millions of years to have any effect.

What also happened simultaneously, as a result, was a change in the place in the heavens to which the axis of the Earth pointed. The result would amount to a 15-degree shift of the vernal equinox (the first day of spring, and the start of the year for most nations), and thus a 15-day delay in the start of spring. Instead of the Sun rising in the constellation of the Bull, Taurus, as it had for thousands of years, it suddenly started to rise in the constellation of the Ram, Aries. I'll detail this in the next chapter.

Chaldean priests had kept records of the movements of the planets since 747 BC and certainly by 652 BC (we have records from that date), but often on differing coordinate systems. These make no sense to astronomers today. The Vedas

mention a sinking of the Earth. Numerous Greek, Roman, Egyptian, Chinese, and Indian sources mention the change in the Earth axis, and even a later Roman playwright incorporates the well-known "change in the heavens" into a play -- specifically in reference to the zodiac. [\[note 19\]](#)

It was as if a power outside the dome of the stars had suddenly shifted the heavens by rotating them away from the horned bull -- the age-old symbol of the celestial Gods. This was a power greater than that of any of the Gods worshipped up to that time. It closed an era.

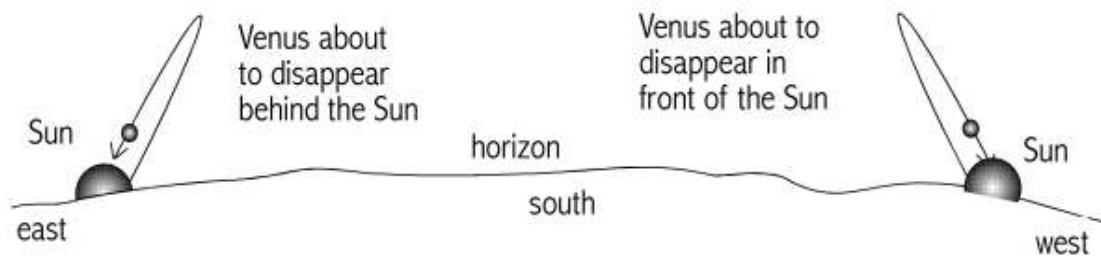
Although the changes in the night sky were seen immediately, the significance of the change was not initially appreciated. But within a few hundred years this entered religious and philosophical thinking in the Middle East, India, and China. It is almost certain that Buddhism can trace its inspiration to this event of 685 BC. The Persian Zoroastrianism similarly dates from this period, and strongly influenced Judaism. In China the concepts are expressed in the philosophy of Taoism. The Tao proposes to explain "the change of the path." The "mystery religions" of the Middle East and Greece date from this period. I will get back to this topic in a following chapter.

Additionally Rose and Vaughan report that 9 years later, in 670 BC, for some unknown cause, the eccentricity of the Earth's orbit changed significantly (from 0.10 to 0.0+). This means the orbit of Earth became nearly circular, and no longer overran the orbit of Mars. With that the drama in the skies was over. [\[note 20\]](#)

Endnotes

Note 1 --

To explain the strange behavior of the planet Venus: Today Venus is mostly seen only at night, and never more than about 40 degrees alternately above the east or west horizon. Once the Sun rises, Venus is (generally) no longer seen.

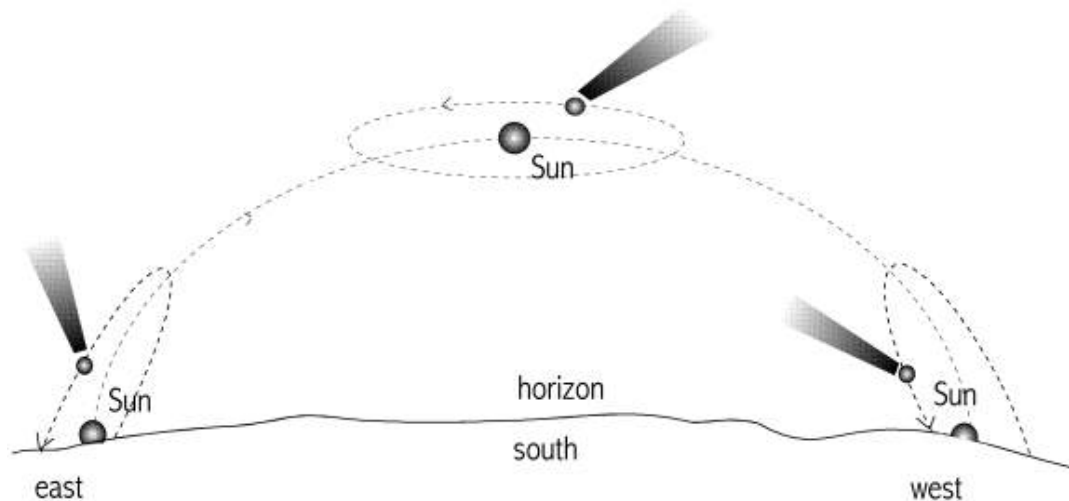


Path of Venus as Morning Star and Evening Star

*[Image: The loops described by Venus as Morning Star and Evening Star.
Illustration by J. Cook.]*

Venus is an inner planet. It revolves around the Sun between Earth and the Sun. Its path in the sky describes its orbit around the Sun.

In antiquity Venus was seen also in the day skies (today also, but infrequently). During night hours it was seen preceding the Sun before rising (in the east), or appearing after the Sun set (in the west). In the west, in showing directly after sunset, it would distance from the Sun over the following days, that is, be seen higher in the west sky every day, and then start to come closer again, to suddenly disappear for 8 days, to then rise before the Sun in the east. In rising before the Sun, it would also slowly distance from the Sun and then return, to then disappear for some 60 days or more, after which it would again rise directly after sunset in the west.



Path of Venus through the day Skies,
before 685 BC

[Image: The path described by Venus during daylight hours. Illustration by J. Cook.]

In antiquity, Venus was seen as a brilliant object near the Sun. It would seem to circle around the Sun, always with a tail pointing away from the location of the Sun. But it would disappear completely from the skies twice during its 584-day synodical period, once for 8 days, and once for 50 days as it passed in front of the Sun or behind it. These are the current values. In AD 700 the Maya recorded 90 days for the second value.

The Venus tablets stand out as a singular early record not involving any other planets, included with a cache of omen tablets known as the *Enuma Anu Enlil*. Hope Anthony, in "A Guide to Ancient Near Eastern Astronomy" (University of Texas), writes:

Enuma Anu Enlil: An astrological omen series comprising some 68 tablets. The tablets themselves were found in the Assyrian king Assurbanipal's library in the ancient city of Nineveh, and were written in the 7th century BC. However, evidence suggests the collection of omens is much older than the tablets found in the library, and the original series probably dates back to the Old Babylonian period at the beginning of the 2nd millennium BC."

"The Enuma Anu Enlil deals mostly with the constellations, or 'fixed' stars, and, to a lesser degree, with the planets. The exception to this is tablet 63, known as the 'Venus Tablet of Ammizaduga'.... Several copies of tablet 63 have been recovered in varying degrees of preservation, but a composite of these reveal the tablet to be a record of rising and setting dates for the planet Venus over a period of 21 years. As with Enuma Anu Enlil as a whole, the 'Venus Tablets' also contain omens."

Anthony gives an example of an omen text as:

"If in month I the Demon with the Gaping Mouth (Cygnus) rises heliacally: for 5 years in Akkad at the command of Irra [Mars] there will be plague, but it will not affect cattle."

The reference to Akkad places the above text to an era well before the era of Babylon or the third Assyrian empire. But by similar references to contemporary events, the Venus tablets themselves can be placed after the start of the 7th century BC.

[\[return to text\]](#)

Note 2 --

The data is not missing. Venus was not observed to disappear for nine months, which would have been from March through December.

Year	Invisibility During Inferior Conjunction	Invisibility During Superior Conjunction
1	3 days	
2	2 months, 8 days	
3	20 days	
4	2 months, 1 day	
5	15 days 2 months, 4 days	
6	3 days	
7	2 months, 11 days	
8	7 days 2 months, 7 days	
9	9 months, 4 days	<-----
10	2 months, 6 days	
11	11 days	
12	5 months, 16 days	
13	7 days 2 months	
14	1 month, 16 days	
15	2 months, 15 days	
16	15 days 3 months, 9 days	
17	4 days	

18	---	---
19	15 days	
20	2 months, 6 days	
21	7 days	2 months
-- after Livio C. Stecchini, "The Twenty-One Years of Venus"		
Kronos Volume 7 number 3, 1982		

An ephemeris shows that rather than disappearing behind the Sun in the west in January of 684 BC, Venus rode some 8 degrees above the Sun. Thus it moved from being seen in the west above the Sun, rather than in front of the Sun, to next being seen in the east, also above the Sun, without the disappearance period. This is a rare condition, and could be held as proof that the data does not belong in 1500 BC, but properly describes conditions around 685 BC as I have determined.

An ephemeris can be used because the later changes in eccentricity do not change the location of Venus or Earth by more than a few days. Both Earth and Venus were on orbits very little different from today. Also, eccentricity does not change the orbital period.

It was during the course of the previous year (685 BC, astronomical) that the planets Venus and Mercury blazed with light.

[\[return to text\]](#)

Note 3 --

Velikovsky, in Chapter 10 of *Worlds in Collision*, presents a listing of the anomalous spans of time that Venus was visible in the east or west, and the length of disappearances, as recorded by the *Venus Tablets of Ammizaduga*. Velikovsky uses this information to bolster the notion of an irregular orbit for Venus in 1500 BC. The *Venus Tablets of Ammizaduga* adequately prove that there was no regularity at all. But Velikovsky (or anyone) should have realized that if both the Earth and Venus were on eccentric orbits then this condition would be expected. Today Venus has the most circular orbit of any planet, and Earth nearly so, and the visibility and invisibility of Venus in the sky is thus very regular.

I should also note that the idea of "visible in the east" and "visible in the west" is an erroneous notion, since in antiquity, because of its bright coma and tail, Venus moved visibly across the skies with the Sun in the daytime (in addition to showing at night after sunset or before sunrise). What was strange to our

ancestors was that Venus would periodically disappear altogether -- in passing behind the Sun or in front of it. At these times the tail would shrink also and disappear, because the plasma tail would be either directed away from the Sun toward Earth or away from the Sun while behind. This strange behavior, in fact, is why Venus was watched. It was such a peculiar object that it was not classified as a planet until after 600 BC.

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Note 4 --

Normalization involves dividing data points by an associated variable, which in effect removes its influence on the data. In this case the data could be investigated without having to know (for example) the synodic period of Venus or Earth. Normalization did not supply missing data, it only allowed Rose and Vaughan to test the data against various assigned eccentricities for Earth and Venus.

The background and methods were detailed in a series of articles by Lynn Rose and Raymond Vaughan, the first of which appeared in *Pensee* in 1972 as "Babylonian Observations of Venus." This was followed by a number of articles in *Kronos*: "Analysis Of The Babylonian Observations Of Venus" (1976), "Ninsianna Update" (1980), and "Section II, The Artificial Insertion" (1980). In 1994 a summary of this analysis was presented at the "Kronia Conference" in Portland, Oregon.

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Note 5 --

"When the family of the Babylonian kings died out, after 8 years of no kings, Esarhaddon the king of Assyria conquered them and held that kingdom for 13 years. (Ptolemy's, Can. Reg.) It appears Assaradinus is the same person as Esarhaddon. This is from the similarity in the names and by the word of the Holy Scripture. It intimates that he was king both of Assyria and Babylon at the same time. 2Ki 17:24 19:37"

-- James Ussher, *The Annals of The World* (1650)

Kingship in antiquity was not assumed arbitrarily. Kings were appointed by the Gods, and kingship stayed in a family. This was recognized even by the conquerors of a nation.

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Note 6 --

Assurbanipal is the third son of Esarhaddon, and is installed as king of Assyria apparently through the intrigues of his grandmother (who was Sennacherib's surviving wife, a Canaanite princess), and selected as the most able of the three sons of Esarhaddon.

By a proclamation in 672 BC, his father Esarhaddon, had ordered that on his death Assurbanipal should be crowned king of Assyria, and Shamash-shum-ukin as king of Babylon. Thus the (older) crown prince (installed in Babylon) was skipped over for kingship of Assyria. He, of course, revolts at a later date.

Under Persian rule, after another revolt in Babylon, Xerxes melted down the statue of Marduk in 482 BC. When the historian Herodotus arrived in Babylon a generation later, he climbs the 360 stairs of the ziggurat to find the chapel at the top empty.

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Note 7 --

The suggestions of a world-view for the Mesopotamians is developed in the chapter "Language and Causality," under a discussion of languages and their influence on the conceptual point of view of reality for a people.

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Note 8 --

The story of the Assyrians and Babylon recounted here is an abbreviated version. For greater detail see the last chapter of H. W. F. Saggs, *Babylonians* (2000).

A time-line of secular and celestial events in Babylon in the 7th century BC follows.

time-line of secular and celestial events

Data below are in Eastern Mediterranean chronology, and not corrected to astronomical dates. Thus 680 BC (below) will later be shown as 685 "BC" -- actually meaning -685.

tablet	year	nny	events (nny = no new year)
--------	------	-----	----------------------------

	689		Babylon destroyed
	688	1	New Year not celebrated (see 'nny' series at left)
.....			first series of the Venus Tablet data ...
1	687	2	(Earth's eccentricity at 0.10)
2	686	3	(Earth shock recorded) (Sennacherib at Jerusalem)
3	685	4	
4	684	5	
5	683	6	
6	682	7	
7	681	8	Sennacherib assassinated (8th year of no temple)
8	680	9	Sennacherib's son Esarhaddon becomes king of Assyria. Venus's disappearance in the east delayed one month Babylon rebuilt -- "Year of the Golden Throne"
.....			second series of the Venus Tablet data ...
9	679	10	(Earth's eccentricity at 0.10, but aphelion moved)
10	678	11	
11	677	12	Esarhaddon's son Shamash-shum-ukin moves to Babylon
12	676	13	
13	675	14	
14	674	15	
15	673	16	
16	672	17	
17	671	18	
18	670	19	
.....			third series of the Venus Tablet data ...
19	669	20	Esardahhon dies, (Earth's eccentricity at 0.0+)
20	668	21	Esardahhon's son Shamash-shum-ukin becomes King of Babylon; Marduk returned to the temple. This is year 21 without a New Year celebration
21	667		New Year celebrated again
.....			end of the Venus Tablet data ...

Note that the year of the Earth shock, 686 BC, falls in this period, but is not an instrumental part of the calculation.

There are a number of discrepant dates, being off by one year, which may follow from the fact that Assyrian years were counted from the spring equinox (rather than January 1), and the fact that I use astronomical years as calendar years without numeric conversion. This may also suggest that the eruption of Venus may have happened directly before the rebuilding of the temple compounds.

Celestial data for 680 BC shows up correctly as ephemeris information for 685 BC, Julian, however. This corrects for the four-year difference between Eastern Mediterranean chronology and actual years (the error of four years by Dionysius Exiguus), and the fact that I seem to be off by a year in the above chart.

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Note 9 --

Except for the records detailed in the *Chilam Balam*, there are few sensible Mesoamerican details about Venus (Quetzalcoatl) in 685 BC, except notions that he set himself on fire and disappeared across the ocean on a raft of snakes. I could suggest that "the ocean" is the Absu here and the raft of snakes are seen near the equinox, similar to Scylla of the Odyssey -- except that it is 1700 years late. It was more important to the people of Central America to have received the promise made by Quetzalcoatl to return and set things right. It was another salvation religion introduced to the world.

"An outstanding problem with the analysis is the eastern disappearance [of Venus] on the twenty-fifth day of the twelfth month of the eighth year. Our model requires that the invisibility ought to have begun at least a month earlier than that."

-- Rose and Vaughan

The month delay (before the period of the "Golden Throne") might suggest that Venus had changed the shape of its orbit, perhaps moving its perihelion to a different location along its orbit, although Rose and Vaughan claim that the orbit of Venus did not change during this period. Rose and Vaughan suggest that in this case the *Venus Tablets of Ammizaduga* might have misspelled the name of a month.

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Note 10 --

Augustine quotes a lost document by the Roman Varro of the first century BC, but places the event at the time of the Exodus.

Homer makes no mention of Phaethon (except as an epithet for Helios), unless we were to understand the pouting of Achilles represents the unwillingness of Jupiter to act in response to the destructiveness of Mars (Ares) for 120 years. Hesiod mentions Dawn as the parent of Phaethon. Apollodorus does the same in

the second century AD. A document attributed to Hyginus in the same century also mentions the ride. In many instances Phaethon is equated with Saturn and, more often, with Jupiter (vd Sluijs).

The retelling of the Phaethon legend by Ovid (43 BC -- AD 17) is correct in detail for the nova event of Venus in 685 BC, except for the timing. Ovid has the whole of the ride of Phaethon happen in one day. But see the "Star Wars" chapter for more; this describes the movement of Venus and Mercury through the skies in accurate detail.

When Ovid and other Roman writers describe, "the Earth was burned up," as a detail of the retelling of the legend of Phaethon, they do so correctly. Other exploding blazings in the sky have sent "the fire of Heaven" (Ignis Coelis) to regions of Earth, as late as AD 900. The "Great Chicago Fire" of AD 1871 has been attributed to Ignis Coelis. Large forest fires happened in Northeastern Wisconsin near Green Bay (the "Great Peshtigo Fire") and in Upper Michigan on the same date and on the same evening as the Chicago fire.

More recently, the patchwork of simultaneous fires in Southern California in October 2007, looks, from maps of the affected areas, to be distributed in a fashion very similar to the Great Chicago Fire of AD 1871 -- locations separated by many miles, but all along a north-south line.

Of course a long rainless season and dry tinder is a prerequisite. But the lightning strikes, which are thought to cause the ignition, were absent. Most of the 170 fires started up simultaneously on July 15. Arson has been suggested, but that would involve an amazing coordination of efforts and fails to even suggest a reason for the efforts. Similar north-south directed strings of fires happened in Greece during 2007 (June 28 and July 15) and Croatia (July 27).

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Note 11 --

The *Zend-Avesta* are the sacred books of the Parsis of India, the remnants of the scriptures of Zoroastrianism (Mazdaism) at an earlier time in Persia. In 500 BC Herodotus makes indirect references to Zoroastrianism in his discussion of Persian religion.

The quotations are from the translation by James Darmesteter in 1880, and are abridged. The translator (or a later editor) notes, "Tishtrya is the angel of the star Sirius." This is a fictional association established long ago in Mesopotamia

and Egypt. Each person had a star associated with their "spirit." Other quotations make clear that we are not talking about Sirius, as, for example:

"We sacrifice unto Tishtrya, the bright and glorious star, that afflicts the Pairikas, that vexes the Pairikas, who, in the shape of worm-stars, fly between the earth and the heavens, in the sea Vouru-Kasha, the powerful sea, the large-sized, deep sea of salt waters. He goes to its lake in the shape of a horse, in a holy shape; and down there he makes the waters boil over, and the winds flow above powerfully all around."

The sea here is in the cloud-bearing sky. James Darmesteter, in the introduction, writes:

"The scene of the fight is the sea Vouru-kasha, a sea from which all the waters on the earth fall down with the winds and the clouds; in other words, they fight in the sea above, in the atmospheric field of battle."

The Vouru-Kasha is in effect the Absu, imported into the hymn to Tishtrya from much older sources, not untypical of the remainder of the *Zend-Avesta*, where older "mythological" elements are incorporated in the text. Internal literary consideration would suggest that the actual written texts date from the Sassanian period of Persia, AD 200 to AD 600.

"He makes the waters boil over," is generally attributed to the star Sirius, when it would be seen at the east horizon where its path merged with the last remaining ring of the Absu. This would also be true of any bright planet found on the ecliptic at the point where it crossed the remaining ring below the equatorial. This is thus a likely condition for planets in June or July, since this time of the year represents the maximum displacement of the ecliptic throughout the night, and planets will very likely be traveling through the last ring below the equatorial for some portion of the night.

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Note 12 --

Velikovsky uses these descriptions as suggestions for the events of 1500 BC, but the composition of the Zoroastrian *Avesta* dates from well after 600 BC. He notes that editors other than James Darmesteter have described the hymn as a battle of Venus and the stars against the planets. I did not read that into the hymn, but it would be of revealing significance, since indeed the stars end up in complete disarray.

I should clear up some other "strange celestial events" which have come to haunt Velikovskian discussions. Astronomical information compiled by Huang Sheng (AD 1146 to 1194) includes the statement that "Once T'ai-P'ai [Venus] suddenly ran into Lang Hsing [Sirius], though it is more than 40 degrees south of the Yellow Road." But to have Venus move this far off the ecliptic (the Yellow Road), and then return, is physically impossible and represents a complete misunderstanding. The text, as it has come down to us, has to represent an emendation of earlier sources. Most likely the phrase "ran into" is an interpretation of "at the same time," not "at the same place." It is amazing that this text was copied without thought from one author to another in antiquity, including the detail of the 40 degrees between Sirius and the ecliptic (the actual separation is 37 degrees in latitude).

The "astounding event" in question is the simultaneous heliacal setting of Venus and the heliacal rising of Sirius in AD 350 (about July 10 or so) when they are only 30 degrees apart at the horizon, and after a day or so could be mistaken for each other. This is a very rare event (to be so close together just as the Sun rises), which only happens at 730-year intervals. Since this is a heliacal rising, Sirius had not been seen for months, while Venus had been moving closer to the east horizon, day by day. Just as Venus disappears behind the Sun, Sirius first shows as rising heliacally. Venus is at this point occluded by the rising Sun, and thus Sirius might easily have been misidentified for Venus, making it look as if Venus suddenly jumped off the zodiac. It happened again in about AD 1080, a century before the time of Huang Sheng's compilation, but this event went unrecorded. Sirius is the brightest star in the sky and of about the same magnitude as Venus.

Jan Sammer writes of the earlier notice of the same event,

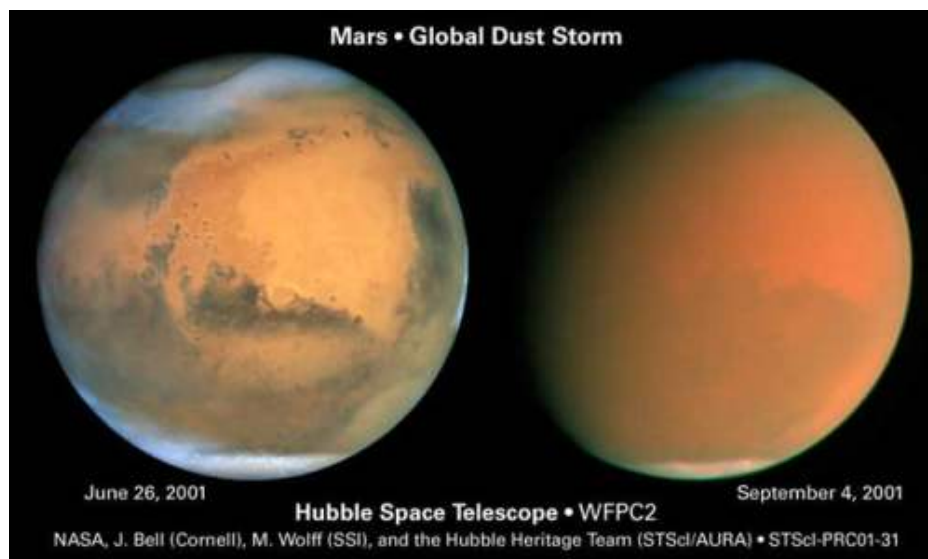
"The same ancient tradition was [also] referred to by the early eighth-century AD Chinese astronomer Y-hang. As told by Gaubil, Y-hang wrote that 'in the time of Tsin one saw the star Sirius eclipsed by the planet Venus.'"

This is the event noted above which happened in AD 350. The Tsin dynasty dates from AD 265 to AD 420.

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Note 13 --

Hercules sets himself on fire to escape a skin disease brought on by donning a poisoned garment. Mars was seen at close range through portions of the 8th and 7th century BC, and before the eruption of Venus, but did not come close to Earth again thereafter. The sightings were close enough that the Martian landscape is seemingly described by Hesiod in his composition *The Shield of Hercules*. The sight of the pockmarked and scarred lower hemisphere might have been evidence enough that the planet was suffering from some terrible disease. The later nova event of Venus constituted his funeral pyre.



[Image: Mars in a dust storm, September 2001, after NASA.]

The garment might also have been a global dust storm, which still obscures Mars today after it passes Earth and is subjected to increased plasma impinging on its surface from Earth's plasmasphere tail. (Last noted in AD 2001.)

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Note 14 --

M. A. van der Sluijs, in "On the Wings of Love," *Journal of Ancient Near Eastern Religions* (2008), makes the case that the Phaethon of Hesiod is the same as Phaethon of Ovid and Nonnos. See <http://www.mythopedia.info/two-Phaethons-JANER.pdf>. Quoting an absolutely minimal description from Hesiod:

"And to Cephalus she [Eos] bare a splendid son, strong Phaethon, a man like the gods, whom, when he was a young boy in the tender flower of glorious youth with childish thoughts, laughter-loving Aphrodite seized and caught up and made a keeper of her shrine by night, a divine spirit."

"She" here is Eos, dawn. As I have pointed out in the text, the electric impact between Earth and Mercury a year earlier (686 BC) reduced Mercury's orbit to fall close to the Sun, so that indeed he would show as the "Morning Star." Thus Mercury at this time had to be reconciled as being "new," so that calling Mercury or Phaethon "the child of Dawn" is perhaps appropriate, since Mercury would only show at dawn, briefly. Only the reference to giving birth keeps this mention from being totally enigmatic, for otherwise we would have to assume that Mercury had been in the position of only showing briefly at dawn for eons.

Van der Sluijs follows up on the earlier quotation from Hesiod with a quotation from Hyginus, 750 years later, in the second century AD:

... in his book on astronomy, alluded to what is evidently the same story concerning the anonymous *Aurorae et Cephali filium*, "son of Aurora and Cephalus", whose beauty rivaled that of Aphrodite:

"Some have said it represents the son of Aurora [dawn] and Cephalus [another hero kidnapped by Dawn], who surpassed many in beauty, so that he even vied with Venus."

Vd Sluijs elucidates "it" as "the star of Venus," but Hyginus had already identified "it" as Saturn in his text in the then current tradition which assigned "Phaethon" to Saturn or Jupiter. "It" cannot simultaneously "be Venus" and "vie with Venus." But vd Sluijs bolsters the tradition of an abducted Phaethon with other quotes from antiquity.

Knowing the placement of the planets in the sky for the years of 686 BC (after March) and 685 BC, all the various attempts at anthropomorphized rationalizations in antiquity start to make sense. It is still somewhat disconcerting to realize that Hesiod, who most likely witnessed the events of 686 and 685 BC, did not make more of it. This suggests that perhaps the mythology of the misguided "chariot of the Sun" and the death by a lightning bolt may have had its source in Asia Minor, the same region which yielded a number of religions based on the death of a Son of God, rather than Greece.

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Note 15 --

James Darmesteter, in his introduction to the translation of the *Zend-Avesta*, also makes note of the lightning bolt in Zoroastrian and Vedic literature:

"Sauru, which in our texts is only the proper name of a demon, was probably identical in meaning, as he is in name, with the Vedic 'S'aru,' 'the arrow,' a personification of the arrow of death as a godlike being."

"The same idea seems to be conveyed by Ishus, 'the self-moving arrow,' a designation to be accounted for by the fact that Saru, in India, before becoming the arrow of death, was the arrow of lightning with which the god killed his foe."

Neither the *Popol Vuh* nor the *Chilam Balam* has reference to the plasmoid from Jupiter as events, but only as objects. In the *Popol Vuh* a "bundle" is identified as in the possession of the Quiche tribe by the time they receive their tribal Gods. Considering the 120-year period when the Earth was constantly subjected to lightning strikes from Mars, perhaps it could be understood that a lightning bolt from another planet might have been accepted as matter of fact. But it seems unlikely.

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Note 16 --

I am basing this on timing developed in the chapters "The Books of the Chilam Balam" and "Olmec Alignments," that is, that it took 12 days to travel 484 million miles. Thus the bolt was only seen in the daytime sky as it passed Earth for two and a half days. During two half-day periods of this time the Pacific Ocean faced the traveling plasmoid. During the other times first America, then Asia, and then Europe, in that order, saw the shape in the sky as the bolt passed by. Asia and Europe only saw the bolt as it was approaching and again after it had passed by Earth.

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Note 17 --

The understanding of Olmec iconography is completely submerged under ideas of depicting ears of maize as sacred aspects in a completely unknown philosophy, religion, and social structure of the Olmecs and the people of the Valley of Mexico. See, for example, Karl Taube, in *Olmec Art at Dumbarton Oaks* (2004). Certainly the Olmecs would see the metaphorical connection between flower-shaped plasma expulsions and ears of maize. The use of a tri-lobed headdress and depictions of ears of maize may have preceded 685 BC. Later Maya iconography clearly depicts the maize iconography. It is curious, however, that sprouted and ripening maize does not look like that.

What we think we know about the Olmecs is without exception completely derived by analogy from the structure of our own society. Taube suggests that it is the export of "rich agricultural abilities" and a "symbolism of agricultural fertility and wealth" which provided the exchange basis for raw materials such as jade, as if trading technology for materials. I would suggest that their main export was a religion with a claim of control over the sun and the rain.

For the jester-god see the summary of archaeological sources and iconography bearing on this in a paper by Virginia M. Fields, "The Iconographic Heritage of the Maya Jester God" (Los Angeles County Museum of Art, 1991).

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Note 18 --

Almost universally all the retellings of the legend of Phaethon, from 500 BC to AD 500, add the curious detail that as Phaethon dies he falls into a celestial river "Eridanus" (a constellation), or the river Po in northern Italy (also known as Eridanus), but located northwest from Greece. His three, seven, or nine sisters, who mourn his death, are turned into poplar trees along the river, and their tears drop as amber beads into the water. The poplar is a very slim tall tree of the Mediterranean region, and perhaps apt as a representation of plasma plumes.

Amber washes up at the shores of the Baltic. The change in the axis of the Earth in 685 BC moved the Arctic Circle six and a half degrees of latitude further north, perhaps bringing the region of the Baltic into the European trade circuit. The amber beads have their source in a play on words, but also accurately reflect their source in trade from the Baltic. (Amber is found in the Po region of northern Italy also.)

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Note 19 --

Chaldea was originally a nation from Southern Mesopotamia or Northern Arabia which came to rule at Babylon after 625 BC. Bishop Ussher records for 261 BC:

"Gerosus (Pliny l. 17. c. 56.) published the observations of the Celestial Motions among the Babylonians for a period of 480 years. This is the number of years from the beginning of the Epoch of Nabonassar's account [747 BC] as other learned men understand this."

Others have pointed out that there are no sensible records for the period of approximately 750 BC to 700 BC, with the exception of the *Venus Tablets of Ammizaduga*. What we have today is data only from after 650 BC.

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Note 20 --

From the data of the eccentricities, Rose and Vaughan come to the conclusion that the ratio of the synodic periods of Earth and Venus was 1.63. (A synodic period is the time a planet takes to complete one orbit as seen from Earth.) This is close to today's ratio of 1.625.

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Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Chapter 25: The Hour of Phaethon.

\$Revision: 42.7 \$ (hist.php)

Contents of this chapter: [\[Dating The Events\]](#) [\[Hour of the Thunderbolt\]](#) [\[The Start of History\]](#) [\[A New Order of the Sky\]](#) [\[The Sky in Disarray\]](#) [\[A Change in the Equinox\]](#) [\[Endnotes\]](#)

This chapter deals with the world following 120 years of electric contacts between Earth and Mars, from 806 BC to 687 BC, and the subsequent blazing of the Venus and Mercury in 685 BC. This is an era which will see the start of history, science, and philosophy, and the genesis of contemporary religions. All four are the direct result of the events of 685 BC. The quieting of the skies after 685 BC affected how humans saw the world, and we see immediate attempts to reach a new understanding, a science not based on the willful and arbitrary actions of the Gods. At the same time, a much larger religious conceptualization comes forward, based on a power beyond the observable Universe. But first, dates for the year 685 BC.

**"From the first, humanity had to be religious. It is still so.
Further, it will be religious so long as it will exist.
Religion is ultimately hope, and humans live on hope."**

-- Alfred de Grazia *The Divine Succession* (1983)

Dating the Events of 685 BC

I'll briefly describe the four dates of the events of the year 685 BC and how these were derived. The dates can all be derived from the Maya *Chilam Balam*, verified from Mesoamerican site alignments, and partially verified from information from the Eastern Mediterranean region. [\[note 1\]](#)

The dates, on the Gregorian calendar and all in the astronomical year 685 BC, are as follows:

- Venus and Mercury start to blaze, June 15
- Jupiter develops a coma, July 9
- Jupiter releases a plasmoid bolt, July 14
- Jupiter's plasmoids lands at the Sun, July 25

In the later chapter "Olmec Alignments," I have determined the three previous dates when the world was destroyed and recreated (in 2349 BC, 1492 BC, and 747 BC), from site alignments in Veracruz and the Valley of Mexico (alignments of the sites to a setting sun at mountains or volcanoes). For the 13 sites which were considered, 20 alignments can be assigned to September 8, 2349 BC (or the later equivalent for the setting of the Pleiades), 16 alignments can be assigned to April 19, 1492 BC, and 10 alignments can be assigned to February 28, 747 BC. This is an astounding series of coincidences -- especially since these were distributed over only 13 sites.

Thus when I started to find additional alignments to July 9 (4 or 5 instances), July 14 (5 instances), and July 25 (7 or 8 instances), they could not be ignored. Additionally, August 12 started to show up. August 12th or 13th was a retrocalculated date for the "second creation," probably first used at La Venta, and then by the very influential city of Teotihuacan, where it was achieved with an alignment of the primary axis of the site. There may be other alignments like that, but I do not have site plans for other sites. The additional alignments, by the way, occur at sites dating in their construction to after 600 BC. Details below.

The following lists the dates in reverse order, for once the concluding date is found, the other dates can be found in reference to that.

... ending date, July 25th

The first inkling that July 25th may have been an important date in Mesoamerica was the fact that the Maya celebrated the following day as "new year's day" at the time of the Spanish invasion. The date is mentioned by bishop Landa, and was apparently set at the Maya site of Edzna in the Eastern Yucatan, where a vertical gnomon has been found, set to show the overhead passage of the Sun on July 25th. Edzna is at the same latitude as the city of Teotihuacan in the Valley of Mexico, where one of the site alignments (to a mountain) is also for July 25th. The next day, July 26th, was new year's day and the start of a seasonal agricultural period.

The importance of the date of July 25th can also be suggested from the fact that Book 10 of the *Chilam Balam* makes only one error in the recollection of the 7000-year history of celestial events, and that is to force the assignment of July 25th to the event of 2349 BC (which we know as the flood of Noah), by reassigning the event to an incorrect year (actually to an incorrect Katun and Tun). The "flood" of 2349 BC, known to the Maya as the "third creation," was very important, as can be shown from the continued iconographic references in sculptures 3000 years later. Having experienced the end of an era on July 25th, 685 BC, it became necessary to prove that all previous eras had also ended on July 25th. (More on this particular quirk in the chapters "The Books of the Chilam Balam" and "The Day of Kan.")

If July 25th is accepted as the day that the plasmoid from Jupiter landed at the Sun, and brought quiet to Venus and Mercury, ending, a 120-year period of high planetary activity, then other dates and time spans will segue easily to this date in 685 BC.

... starting date of the eruption of Venus, June 15th

The starting date of the nova event of Venus in 685 BC can be found by collation of some disparate data. My first clue was a comment by Dennis Tedlock, translator of the Quiche Maya *Popol Vuh*. He commented on a passage where the hero twins of the *Popol Vuh*, Hunahpu and Xbalanque, willingly jump into the oven of the lords of Xibalba (the underworld). In the *Popol Vuh* the lords attempt to trick the twins into jumping into an oven. The twins see through the trick, and respond as follows:

"You'll never put that one over on us. Don't we know what our death is, you lords? Watch!" they said, then they faced each other. They grabbed each other by the hands and went head first into the oven.

Little did the lords of Xibalba know that in sacrificing themselves, the twins were destined to "become" the Sun and the Moon. Mesoamerica certainly understood that both the Sun and the Moon had made their first appearances in the remote past, the Sun in 4077 BC, the Moon in 2349 BC. But connecting an event of 685 BC to events thousands of years earlier was not a problem to the Maya, especially in a popular narrative which had already existed since the Classical period (AD 400 to AD 900), as can be ascertained from depictions on vases from this period. [\[note 2\]](#)

In the *Popol Vuh* the twins Hunahpu and Xbalanque are understood to be Venus and Mars. This much is certain from the story of their birth, and can be corroborated from comments in the *Chilam Balam*. But this is not correct. In actuality the two planets which were seen in flames in 685 BC were Venus and Mercury. Hunahpu definitely is Venus. As Tedlock notes, he is named after the first day of the five periodic cycles of Venus as Morning star and Evening star. Xbalanque, on the other hand, is not as easily identified. His name could be translated as "little jaguar of the night" where "X" is a diminutive. Xbalanque is always "little," whereas the term "little" is only applied to Hunahpu in a very few instances. In the *Popol Vuh*, Hunahpu always acts in the daytime, Xbalanque acts at night. This would seem to correctly reflect on what side of the Earth Mars (and in the last instance, Venus) and Mercury primarily acted during the 60-year period after 747 BC.

In the last instance, when two planets go up in flames, the two planets are Venus and Mercury. Venus is large, and seen as large, especially with a coma, whereas Mercury is definitely small. Mercury had lost most of its atmosphere in the previous year, and looked no larger than it is today.

I am making this identification, because the confusion of the planets existed already in antiquity. For example, in the Eastern Mediterranean region it was assumed (in some retellings) that the eruption of 685 BC only involved Venus. Mercury travels so close to the Sun that it could easily be confused with the Sun if it (or both) were seen blazing in the sky, and Mercury (normally) could not be located in the skies during the day, unlike Venus, which was visible day or night because of its coma and tail. Mars was also in the skies at this time, close to the Sun but behind it.

Identifying Xbalanque as Mercury allows following up on the comment by Tedlock which comes some pages later after the following text in the *Popol Vuh* which reads:

And then the boys ascended this way [leaving Xibalba], here into the middle of the light [that is, this world], and the sun belongs to one and the moon to the other.

Tedlock writes:

It is not stated literally that they became the sun and moon. ... The nature of Xbalanque's lunar role is foretold by the fact that he is face-to-face with

Hunahpu when they burn together, this being the position of the moon when it is full.

The comment is revealing, but the statement is wrong. This imposes our knowledge of how the Moon and Sun are related, and the cause for a full Moon. For a people to whom the Earth was flat, only a new Moon would fulfill the condition of the Sun and Moon facing each other. They had to be in the sky at the same time, and close together. In fact, looking at a graphical ephemeris for July 25, 685 BC, Mercury is seen next to the Sun, and Venus next to the new Moon.

I thus started to look at new Moon dates in the year 685 BC. From about the time of the equinox, when Venus might have first returned to view from behind the Sun, through the beginning of July, before the concluding day of the nova event, there are five new Moons. In each of these instances the Moon would be very near the Sun. The condition I was looking for was the simultaneous close proximity of Venus and Mercury in the sky.

The following are the new Moon dates, and the location of the planets with respect to the Sun, shown in Right Ascension (hours and minutes of left-right location): A minute is 0.25 degrees. I have only listed the two instances where Venus and Mercury are close together, May 23 and June 22 (Julian).

**From east to west in the sky at noon sidereal time,
Mexico City. Right Ascension in hours:minutes.
Dates shown as Julian.**

May 23 --

Mercury, Venus, Sun, Moon, Mars

4:50, 4:40, 3:25, 3:23, 3:05

Mercury and Venus are close together in Gemini.

The Sun and Moon are close together at the east end of Taurus.

June 22 --

Venus, Mercury, Moon, Sun, Mars

7:20, 7:08, 5:15, 5:26, 4:29

Mercury and Venus are close together in Leo.

The Sun and Moon are close together between Cancer and Gemini.

The above dates of May 23 and June 22 qualify. In both instances Venus and Mercury are grouped close together, one almost above the other, but slightly displaced. In effect Xbalanque and Hunahpu are facing each other, almost holding hands. The Sun and Moon are nearby and in an almost identical position with respect to each other. The point of this exercise is based on the conviction that the Olmecs would have seen these conditions, and furthermore recorded them.

I picked the June date as most likely. June 22 Julian is June 15 Gregorian. The choice of June 15 was made on the basis of information from the other end of the world, from the "Tishtar Yasht" hymn to Venus, of the *Zend-Avesta*. Tishtrya (Venus) battles demons in the sea (sky) for 34 days before victory is achieved. I have noted the details in the previous chapter. Thirty-four days fits the span of time from June 15 to July 25 (Gregorian), with a few days left over, which may also be accounted for in the hymn, but not clearly.

But much more convincing is the description of the blazing of Venus in 685 BC recorded in the *Sibylline Oracle Books*, composed at a much later date in Alexandria, Egypt. The *Sibylline Oracle Books* clearly places Venus in Leo at the start of the event. In fact, as others have noted, Venus riding on the back of a lion (the constellation Leo) was regarded as a symbol of disaster in the Eastern Mediterranean.

Does this date, June 15, show up in Mesoamerican site alignments? No. I almost wrote, "of course not." It does not show up because it is the start of an event; the structure of Mesoamerican languages recognize only the completion of events, and pays scant attention to beginnings.

However, the *Chilam Balam* records a period of time when "it came about that the sun in Katun 3-Ahau was moved from its place for three months." The complete period is noted because it was a celestial disaster of immense scope. Katun 3-Ahau includes the year 685 BC. The three months (of 20 days) are counted inclusively, as are all other intervals of time mentioned in Book 10 of the *Chilam Balam*. So the actual period is two Tzolkin Uinal months. The interval of 40 days (two 20-day months) exactly spans June 15th to July 25th.

... the release of the plasmoid bolt, July 14

This date is based on an interval of 12 days which was put to use in a reconstruction of Monte Alban in 275 BC (detailed in a later chapter), the fact

that July 14th is used by five sites as an alignment, and the suggestion of possible selection of the "day of Kan" associated with the end of an era -- the delivery of the plasmoid on July 25th. Additional nuances with respect to Mesoamerican attempts to forge a science from the numerology of the Tzolkin calendar, including the elusive search for the "day of Kan," are discussed in a later chapter. July 14th also represents a reasonable interval of time for a plasmoid from Jupiter to travel the 480 million miles (773 million km) to the Sun. I develop the reasoning for this date in the chapter "The Day of Kan." Since it would take a considerable amount of text to detail this here, I will have to leave off at this point in the retelling.

... Jupiter develops a coma, July 9

This date is based solely on the fact that it first shows up at Tres Zapotes, recurs 4 times elsewhere, and represents an adequate interval for Jupiter to have been seen with overhead plasma plumes and a lower bifurcated or trifurcated body -- so that these shapes would enter Olmec iconography. This date is thus not well supported. Although the site alignments associated with this date are within two degrees of solstice alignments, it is unlikely that these represent a solstice, despite the fact that both Vincent Malmstrom and Anthony Aveni delight in assigning Mesoamerican site alignments to Summer solstices. The later Maya (and Aztecs) had no ceremonies or festivities associated with the solstices.

Selection of this date for a sunset alignment is somewhat problematic, for "beginnings" are seldom held as significant in the Mesoamerican worldview. What could make the date of July 9 significant is the consideration that the explosion of Jupiter into a coma was a return from the dead (and thus the conclusion of a "death" period) of what would have been, at the time, the primary God, in a manner similar to the return from the dead of Jupiter in 2349 BC. This previous event was certainly remembered, and had been recorded in graphic books. The iconography of the split mountain, the Absu at the autumnal equinox of 2349 BC with an emerging and resurrected God, continues well into the future. The ballcourt imagery is based on this also.

The primacy of a chief God passes to Quetzalcoatl, or to the ball-playing twins of the *Popol Vuh*, after 685 BC, however. I think we need to see the July 9th alignment as one of the religious interpretations of the events of 685 BC which did not take hold in any measure.

Hour of the Thunderbolt

Mesoamerica did not see the plasmoid hit the Sun, for it happened two hours after sunset in Mexico. In the Eastern Mediterranean the flash happened two or three hours before sunrise. But in Australia it happened in full view an hour after sunrise in the morning.

The time of day derives from an Australian Aborigine legend, called "Kirkin and Wyju," recorded by William Ramsay Smith in *Myths and Legends of the Australian Aborigines* (1930). It appears to be about Venus (Kirkin) and Jupiter (Wyju) in the winter (in the southern hemisphere) of 685 BC.

The story portrays Kirkin as very conceited and self-centered. He combs his long blond hair daily, facing the Sun, and tosses it over his head to the front at times in a vain display. (Blond hair occurs among the aborigines.) Wyju, on the other hand, is characterized as "a humble man, who did many wondrous acts." The story tells of his rescue of a child who was swallowed by a God Snake. Wyju has to coax the snake into an upright position, for otherwise the local water supply would disappear. With the snake standing on the tip of its tail, Wyju sliced the snake open along its back to remove the swallowed child.

This will be recognized as an image of the polar plume, with the swallowed child as the ball plasmoid near the end. The timing is wrong, but for the sake of a moralizing story, that doesn't matter. There will be a later image of the polar plume in terms of a column of white smoke.

"The story of his wonderful deed reached even the conceited Kirkin, who became very jealous, and decided that if Wyju should come within the bounds of his hunting ground he would endeavour to slay him."

Kirkin, in fact, invites Wyju to be his guest. During the evening meal Kirkin suggests they go hunting the next day for Wallows -- kangaroo rats. While Wyju sleeps, Kirkin prepares to a nearby Wallow nesting ground and places pointed sticks in the ground around a dead Wallow, with a hidden string tied to the grass and leading away from the location. Kirkin recommends to Wyju:

"To procure this most coveted prey no spear, boomerang, or nulla-nulla is required. You simply walk cautiously into the nesting-ground, and when you see the grass moving you know that beneath it lies the wallow, and with a mighty leap into the air straight above the prey you come down and let your feet land right upon it."

The next day, during the hunt, Wyju does exactly that.

"Wyju jumped with all his might, and came down with both his feet upon the sharp spikes, which pierced them deeply."

Wyju faints in pain, and when he comes to, Kirkin tells him:

"Oh my friend, when you walk upon your feet please don't forget to look me up. The sign by which you will find me is a white smoke column that rises on a still, clear day."

Kirkin leaves, leaving Wyju to suffer and bleed.

"From new moon until next new moon did Wyju, overcome with pain and suffering, weep and cry unto the All Father Spirit."

He requests having the Winjarning brothers sent. They appear at the second new moon and heal his feet. Note the *new moon* dates. The reader will recognize the period of two new moons from the Mesoamerican retelling.

"Wyju went in haste far away into the northern land, and saw a white smoke column rising straight into the clear blue sky. [He walked until] ... he came within sight of Kirkin, who was walking round and round the fire."

After sunrise the next day, armed with a warrior's boomerang, Wyju closes in on Kirkin, who is facing east.

"He raised his weapon, and with a mighty stroke severed the head with the golden hair from the trunk. He then committed Kirkin's body to a fire. The spirit of Kirkin rose out of the flame and entered the body of a small hawk-like bird."

I was not entirely convinced until I ran into Jupiter suffering from the spikes in his feet from one new moon to the next new moon, and then a few additional days to hunt down Venus. That matches my deduced timetable, which goes from one new moon (June 15, Gregorian) to the next (July 14, Gregorian) plus 11 more days.

The spikes in Jupiter's feet must be the "long fire-flames [which] rebelled against the Sun," as the *Sibylline Star Wars* text has it. And the blood: Jupiter's plasmasphere would have been red in color, as it had in 2349 BC. When the Olmecs start to construct pyramids, they are called "red mountains," after the image of Jupiter in 685 BC.

The Winjarning brothers seem to be the Australian version of the various celestial twins and brothers of Greece, Italy, and Mesoamerica: the Dioscuri, Romulus and Remus, Apollo and Heracles, and Hunahpu and Xbalanque of the *Popol Vuh*. Wow! That places the legend in the era of 800 through 685 BC. In Australia the boys are busy with "righting wrongs." The evil wrought in the northern hemisphere was absent south of the equator.

Wyju was initially a "half day's journey toward the rising Sun." That is about right; Jupiter stood a half-day toward the east in 685 BC.

The column of white smoke (!) from Kirkin's fire is the northern plasma plume, which would have shown up very soon after the Sun's nova event started. Even Nonnos recalled this 1100 years later. Kirkin has a fire going, which matches the various polar plasma plumes given out as "the fires of the four directions," as, for example, the four braziers of the Egyptians. Kirkin's circumambulation is the apparent traversal of the north cardinal direction at about noon during most of the 40 days when Venus and Mercury appeared during daylight hours.

The bleeding of Wyju also shows up as the bright spikes shining through the last red ring of the equatorial rings. At the latitude of Perth (the likely location of the source for this tale) the Sun, Moon, Venus, Mercury are all below the equatorial at the second new Moon, and the condition of a backlighting red ring could have been seen (the red ring would not otherwise be seen in the daytime). By July 25 (Gregorian), when the skies were identical to today, Venus was probably within that band, but not Jupiter. However, Jupiter coma would be colored red.

In the Eastern Mediterranean the reverse was true. Jupiter may have been high enough at culmination (36 degrees at Cairo) to be behind the red ring (at 42 degrees). But it didn't matter. Jupiter had a red coma anyway. However, the Sun, Venus, and Mercury rode high above the equatorial, and were thus clear of the red ring.

After the spikes are removed, Wyju had traveled to the northern land where Kirkin normally resided -- "in haste." Was the plasmoid mistaken for Wyju? This actually happened in India and with Mazdaism -- the lightning bolt was a separate god. I think a substitution was made in Australia also. This allows Wyju to move "in haste" and to "sneak up" on Kirkin. As the plasmoid passed Earth it would have been seen moving rapidly. Then it slowed down visually, "sneaking up" on Kirkin.

The time of the decapitation is interesting; Wyju selects the "early morning hours of the rising Sun." If correct, this could serve as an anchor for other estimates.

In Western Australia near the end of July of 685 BC, Mercury rises at 6am, the sun rises about 7am, Venus rises two hours later at 9am. (The southern hemisphere is in winter.) Jupiter will not be in sight until late in the day, near 3pm. It is obvious that it is the plasmoid that needs to be watched, not the planet Jupiter.

If the blast at the Sun happened at 9am in Australia, it would be sensed as a flash at the horizon at 3am in the Eastern Mediterranean, which would be an hour before Mercury rose, and two hours before the Sun appeared (it is summer in the northern hemisphere). If the landing of the boomerang was seen an hour later in Australia, then the last travels of the plasmoid would still not likely to have been seen, since it was still an hour before sunrise in the Mediterranean. Mercury was above the horizon but became engulfed by the flash.

I had originally estimated the night as the time of the event for the Eastern Mediterranean, based on the fact that the Phaethon legend shows no clear idea of what entity in the sky was blasted by the thunderbolt. The estimates from Australia confirm this.

Mesoamerica experienced the event at 9pm. The Sun and Venus had set. (Although in summer, this location is near the tropics, and the Sun had set at 7pm.) Mesoamerica also had no idea of what object in the skies was hit. Only knowing that Mars was located just to the west of the Sun (and also below the horizon) would give a clue. Venus has just set at the western horizon a half hour earlier. It might have been obvious that Venus was not the target. The plasmoid had bypassed Venus. But Mars had been the culprit for 120 years.

The splashdown would first show as a flash at the western horizon, where the Sun was below the horizon, having set about two hours earlier. But if the blast had lasted longer than 9 hours (my estimate of the splashdown time at the Sun) it would have still been seen in the east in the morning hours. Thus perhaps did Quetzalcoatl "go east and set himself on fire."

The rise of Venus after "8 days" (in Mesoamerican retellings) is equated to a canonical 8 days (for a westerly disappearance of Venus) because the skies were obscured for four days and this is what Venus was expected to do if it had been properly observed. The *Popol Vuh* mentions four days during which Hunahpu

and Xbalanque appear as catfish ("seen in the river"). The catfish are likely smaller plasmoids from Jupiter which kept the turmoil at the Sun alive for these four days. This is similar to the sequence of plasmoids from Venus in 2349 BC: first a large thunderbolt, followed by lesser bolts in the following days.

I considered using a later hour (like 10am), for Wyju definitely sees Kirkin preening himself before launching the boomerang. Wyju comes up from behind, with Kirkin "facing the Sun." This is indeed the situation if Kirkin is Venus. Kirkin is east of the Sun, with its large plasma tail facing away from the Sun, and Jupiter much further east, and thus sneaking up behind him, but Jupiter remained well below the horizon. It is the plasmoid itself, as the warrior's boomerang, which is seen.

If we wait for Jupiter to show above the southeast horizon, it will be after 2pm. That invalidates any estimated times for other longitudes. I'm inclined to move the character of Wyju from Jupiter to the thunderbolt on these last few days.

Burning Kirkin's body is interesting also. It recalls the Mesoamerican Quetzalcoatl. That would also make me believe that the decapitation probably started shortly after 9am. That way we have an all-day cremation event. It is over (most of it) in a few days. The fire is likely the north polar column in arc mode at the lower portion. The fire and the column would have remained in the same location. Also, the rising of the "spirit of Kirkin" duplicates the rising up of Venus as a star ("the Morning Star") as recorded in Mesoamerica.

Some things remain unresolved, but then, I think that everywhere in antiquity there was an immediate confusion of who was struck by lightning, and who was Phaethon. Hesiod's brief description, along with Hyginus (as pointed out by van der Sluijs), has Mercury as Phaethon, the same as Nonnos and Ovid. Others have Venus. The Eastern Mediterranean actually has it more correct than Mesoamerica, for by assigning Mercury to Phaethon, there was no need for a "rising into the sky" as Mesoamerica had. After the plasmoid was delivered Mercury was no longer seen in the day skies, and was seen only at night within a few degrees of the Sun at sunrise or sunset.

The flash most likely occluded the planets near the Sun, Mercury and Mars. Venus was some 35 degrees east (about 2.5 hours) of the Sun. It probably disappeared in the flash too. Strangely, the Sun was never the suspected target.

If the Eastern Mediterranean had seen the affair in the day sky, it would have been obvious that the plasmoid traveled past Venus, and not past the Sun, but the

splashdown happened at night. That the boomerang came to a halt at the Sun should have been noted in Australia. But it was Venus which had lost its tail and coma. And, of course, the Sun just went on as if nothing had happened.

Mercury was a peculiar object in that it only showed in the day skies for 40 days during this year, and then was never again seen rising that high. It had only taken up its regular station of the true morning and evening star in the previous year.

The last piece of discrepant information is the fact that Kirkin, in addition to facing the Sun, is said to face east -- both on the last day. Only Mercury, west of the Sun could have been in a position to do both of these. Mercury was close to the Sun, about 15 degrees west.

Let me remind the reader that we are seeing all this in the southern hemisphere so that the location of the planets would seem to be reversed from what is seen in the northern hemisphere. The Sun rises in the east, but that is to the right when facing north and facing the equator, where the path of the Sun through the sky will be.

But now consider also the fact that between about July 8 and July 11 (Julian) Mercury moved from a position just east of the Sun to a location just west of the Sun. Since Mercury during these two days rode above the Sun (by 5 degrees), the effect would have been to see its plasma tail "hair" being tossed from his back over the top and to the front of his face. This matches the description of Kirkin:

"Every morning he would mount a high boulder and comb his hair. Then with both hands he would bring the golden shower from the back of his head to hang in front...."

Thus Kirkin in this last scene may be the planet Mercury. If so, then the delivery of the plasmoid at the Sun would have happened between 8am and 9am. In either case, 9am is probably a close approximation of the delivery time of the plasmoid.

The Start of History

What stands out in the period after about 600 BC, and increasingly over the following centuries, is a sudden intense interest in history, which shows up, not only in the Middle East, Greece, and Ptolemaic Alexandria, but also in China.

Why this sudden flurry of research and speculation on events, and specifically only events of the recent past?

There had been over 600 years of a quiet sky, from 1440 BC to 800 BC. Then, within a span of a little more than a hundred years, Venus, Mars, and Mercury closed in on the Earth (or seemed to). The length of the year changed, Mars repeatedly cruised very close to Earth (nine times) to cause massive earthquakes and interplanetary lighting strikes which traveled across wide areas and were accompanied by hurricanes of ground-up rock, burning trees, and flaming sand. Then, just as suddenly, after the nova event of Venus in 685 BC, which surpassed the Sun in brilliance and dropped fire from heaven over wide areas of the Earth, ending with a lightning bolt from Jupiter directed at the Sun, it all stopped.

During the 8th and 7th century BC, and periodically a hundred years earlier, endless wars had raged in the whole region of Mesopotamia and the Levant, mostly involving the states of Assyria and Babylonia feuding with encroaching tribes and kingdoms from the north. Starting in about 750 BC Assyria expanded to conquer all of Babylonia, Syria, the city-states along the Mediterranean coast, and eventually Egypt.

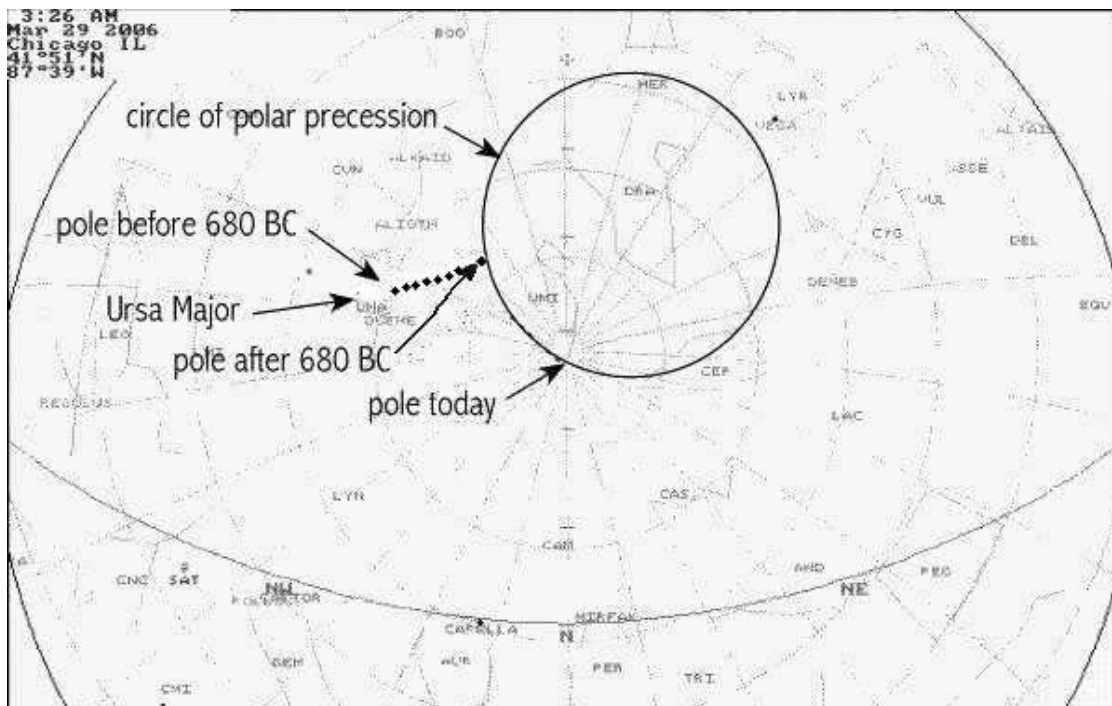
The physical and political changes required an explanation, and the first line of inquiry was to sort out the events. A change in perspective on the progress of time took place, which resulted in the increase of the number of chronicles and records. This is seen especially with the Assyrians, who start to record all their activities -- in effect, they start to write history (as do the Babylonians). The conditions of wars and the compilation of histories is the same in China.

This was followed soon by philosophical speculation, which we will eventually understand as the start of science. It should be recognized that the people of this era were technologically quite proficient. They could measure and map the stars and planets as well as the geography of the Earth, solve for the roots of quadratic equations, undertake massive building and irrigation projects, and institute effective bureaucracies.

Bronze metallurgy was supplanted by the technology of iron after 800 BC. The smelting methods were apparently imported from regions north of the Caucasus. The Assyrians start producing iron weapons. They also adapt the horse to warfare, forging an effective and fast moving cavalry. The same Assyrians, by their own reports, model their warfare after 750 BC on the strikes of Mars and its hordes of companions, absolutely devastating their enemies with a cruelty unequalled in all previous history.

Historians after 600 BC will divide world history into two parts, the era before 747 BC, and the era after 747 BC. The year 747 BC had seen a change in the length of the year, had thrown the lunar month out of sync with the year, and had initiated 60 years of geological and climatic disturbances (or 120 years from 806 BC). However, a more important date was 685 BC, when it all stopped.

A New Order of the Sky



[Image: The change in polar axis in 685 BC shown with a dotted-line. This is an approximation. The path of the polar precession describes a 30- to 32-degree circle about the location of the Sun's axis in space. Illustration by J. Cook.]

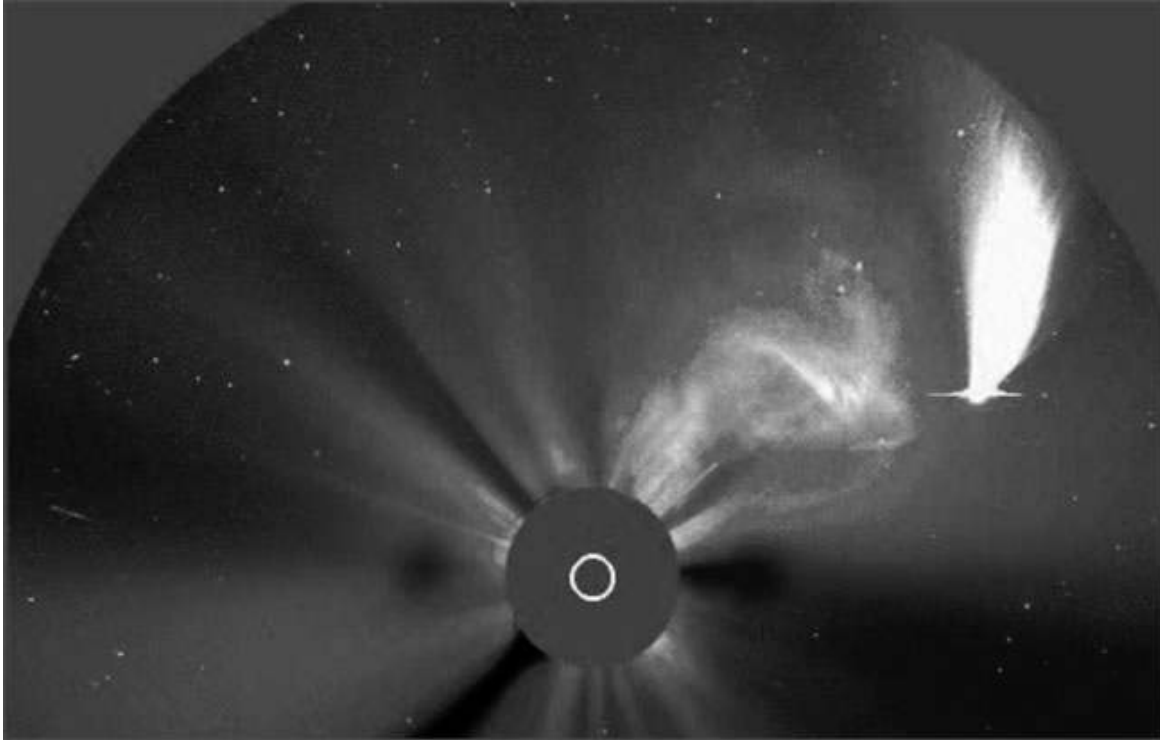
In the seventh century BC, as noted in the previous chapter, the spin axis of Earth (the polar axis) changed to point to a new location in the sky. Greek, Roman, Egyptian, Chinese, and Indian sources, without being specific about a date, all extrapolate to the 8th or 7th century BC as the date when the axis of the Earth changed from Ursa Major (the Big Bear) to a location closer to the Ursa Minor (the Little Bear). Today the axis is located at the tail of Ursa Minor. But both the new location and the actual cause for the change elude us. Did the nova condition of the Sun affect the Earth's axis in 685 BC? I think it probably did. (The thunderbolt from Jupiter in July of 685 BC was not likely the cause.)

Seneca and others claim that the Earth's axis of rotation, that is, the place in the dome of the stars to which it pointed (today at the star Polaris in Ursa Minor), was located in Ursa Major before the 7th century BC. Velikovsky quotes Seneca as, "And the Wain [Ursa Major], which has never bathed in the sea, shall be plunged beneath the all-engulfing waves." But this is hyperbole from the first-century AD play by Seneca, *Thyestes*. The Wain did not plunge below the waves of the Mediterranean sea at the latitude of Rome (42 degrees north) before or after the change in the sky. It still does not do so today. The tail started to just touch the ocean (the north horizon) after AD 200 as seen from the latitude of Alexandria in Egypt. All the rest of Seneca's description is just to make drama of a transformed sky. However, it is the use of a "changed sky" as a metaphor in his play which speaks to the fact that the changes were common knowledge. [\[note 3\]](#)

There are many other references in Roman, Greek, and Indian sources which note that the Earth's rotational axis had at one time been located in Ursa Major. There is even an old reference among the Pyramid texts, "the king looks among the stars of The Wain, to determine true north." [\[note 4\]](#)

The spin axis (polar axis) of the Earth points today to the star Polaris, at the end of the handle of the Little Dipper, the constellation Ursa Minor. Over the course of time the location where the axis intersects the dome of the stars is understood to move slowly on a circular path to point to different locations in the northern sky, but always angled 23.5 degrees away from a line perpendicular ("normal") to the orbital plane of the Earth (known as the "obliquity" of a planet). This circle in the sky is known as the "precessional path" of the Earth's axis, like the circle described by the top of the axis of a wobbling top. By today's observations, it takes 26,000 years to complete the wobble. [\[note 5\]](#)

I will propose that the spin axis moved directly and in a very short period from a location "among the stars of Ursa Major" to a new location in the sky near the current precessional path close to Ursa Minor and then halted, changed direction, and continued at a right angle very slowly. I think this happened in 685 BC during the 40 days when Venus and Mercury blazed in the sky. The nova event of the Sun would have represented an absolutely gigantic electric storm capable of twisting the Earth's rotational axis. I will thus suggest that the blazing of Venus and Mercury, and the simultaneous change in the location to which the Earth's spin axis pointed, were caused by a mass expulsion from the Sun -- a nova event. This was not a single hit, it was an expulsion that lasted more than a month. [\[note 6\]](#)



[Image: The comet NEAT in 2003, meeting up with a coronal mass ejection (CME) from the Sun, a minor nova event. The larger disk blocks the Sun's corona. The smaller diameter circle represents the size of the Sun. After NASA.] [\[note 7\]](#)

Attributing the cause to an electric storm from the Sun does not seem so far-fetched. I would find this an acceptable hypothesis because the effect would have represented relatively low forces extended over a long period of time. The Earth's axis, although experiencing a bending torque, did not react in the typically violent manner that a gyroscope exhibits on the application of an impact force. It is, of course, possible that there were geological effects but these remained completely hidden among the constant earthquakes experienced since the Earth shocks of 747 BC and 686 BC. Earthquakes continued at a high frequency for a long time. Eight hundred years later Rome still reports 57 earthquakes in a single year (Velikovsky). [\[note 8\]](#)

It could also be suggested that the current precessional path of the spin axis -- the so-called wobble which we still experience -- is the last remnant of the event of 685 BC. A "wobble" is what gyroscopes experience, but only if the applied torque persists. But since there is currently no applied force, and precession has not stopped, it is more likely that precession is caused by the Moon's travel around the Earth on a path which each month moves the Moon out of and back

into the Earth's plasmasphere. The Moon is the only satellite of any planet which does this. All other satellites of all the other planets travel within their planets' plasmaspheres, except for a few satellites which remain completely outside of planetary plasmaspheres. [\[note 9\]](#)

The Moon leaves the Earth's plasmasphere monthly because the Moon is on an orbit much further from its parent planet (Earth) than any other satellite of any planet, excepting the few really distant satellites of Saturn (at 6 and 11 million miles). At an orbit of 250,000 miles (400,000 km), the path of the Moon extends beyond the boundary of the Earth's plasmasphere on the Sun side. The Earth's plasmasphere extends only to 80,000 to 160,000 miles (130,000 to 257,000 km), but much further on the night side -- the "shadow" of the Sun's electric field. Thus the Moon travels within the Earth's plasmasphere only on the night side. [\[note 10\]](#)

The entry and exit of the Moon into and out of the Earth's plasmasphere would result in electric effects at the boundary. This would affect the boundary of the plasmasphere locally with each entry and exit. The electric effects are experienced by Earth, just as the arrival of a coronal mass ejection (CME) from the Sun causes a temporary slowing of the rotation of the Earth, although the Earth always regains its rotational speed afterward. The effect of the Moon's entry and exit from the plasmasphere, however, is unlike the effect of a CME, for the disturbance is localized and always offset from the center of the rotational axis of the Earth. All exits are always at the leading edge of the Earth's orbital path.

Since precession was not noticed by the astronomers of antiquity until after 400 BC, we could reason backwards and suggest that the Earth's plasmasphere was more extensive (larger) before that time (probably before 685 BC) such that it would contain the Moon in its travels around the Earth. This would imply that the nova event in 685 BC reduced the size of the plasmasphere to where the Moon, since that time, would cut across the plasmasphere boundary. Since the size of the Earth's plasmasphere is determined by the electric field of the Sun, it suggests also that the Sun's electric field was reduced in 685 BC.

Most likely the relocation of the Earth's axis in space had a relatively quick onset and then a rapid exponential decline, so that much of the change was accomplished within the period of 40 days, but not so suddenly that the Earth would have been jolted -- as had happened frequently in the past. We have to posit these conditions because we know the change happened, and most likely

happened at this time, but went unrecorded (but certainly not unnoticed), lacking violent physical effects impinging on the Earth. The blazing of Venus and Mercury and the lightning bolt from Jupiter were seen by anyone who looked up at the day sky. The rotation in the dome of the stars to a new location was noted, especially by sailors and eventually by astronomers. I do not consider it even a remote possibility that the rotational axis of Earth shifted geographically in any significant manner. The geographic location of the axis of rotation before 685 BC was at exactly the same place (the "North Pole"), as today. [\[note 11\]](#)

Velikovsky mentions a Vedic source which tells that the Earth "receded 100 yojanas" from its place. This is an interesting and significant data point, and turns out to be wholly correct when compared to other astronomical sources. The measurement most likely dates from after the 7th century BC, when the oral Vedic traditions were being transferred to writing in India and emendated with contemporary historical events. One hundred "yojanas" is 720 km, or 447 miles, and would represent a change of 6.5 degrees in the latitude of stars overhead.

If the Vedic source noted that "the Earth receded 100 yojanas from its place," it would indicate a noticeable single change in the skies. The wording seems consistent, because later Roman authors agree that the Earth had sunk towards the south. Pliny called it, "a slackening of creation." But this would only be noticed with a comparison of the night skies before and after 685 BC. The question becomes, "What in the skies stood higher up after the change?"

The position (or height) of the Sun would be an indication as would a change in the background stars of the polar axis. This change can only be accounted for with a change in the inclination of the spin axis to the Earth's orbital plane.

Allowing that the Indians were competent mathematicians (and they certainly were, our algebra is derived from them), it could be suggested that the 6.5 degrees (100 yojanas) represented the shift in the Earth's axial inclination in 685 BC. The axial inclination can be easily measured from the difference (before and after) of the elevation of the Sun at the winter or summer solstice (for example). That would suggest that the axial inclination of the Earth before 685 BC was 6.5 degrees different from the present 23.5 degrees -- it was 30 degrees. [\[note 12\]](#)

The location of stars with respect to each other in the dome of the stars would not change with a relocation of the polar axis (or even a new orbital inclination). Additionally, as far as the geography of the Earth is concerned, north would still

be north, and the other cardinal directions would still be where they were expected to be. The North Pole location in the sky, also would not assume a different elevation above the north horizon. Latitudes would remain the same, although they would have to be recalculated. The Sun and the planets would still travel on the ecliptic, against the same background of stars. None of the stars would shift with respect to each other.

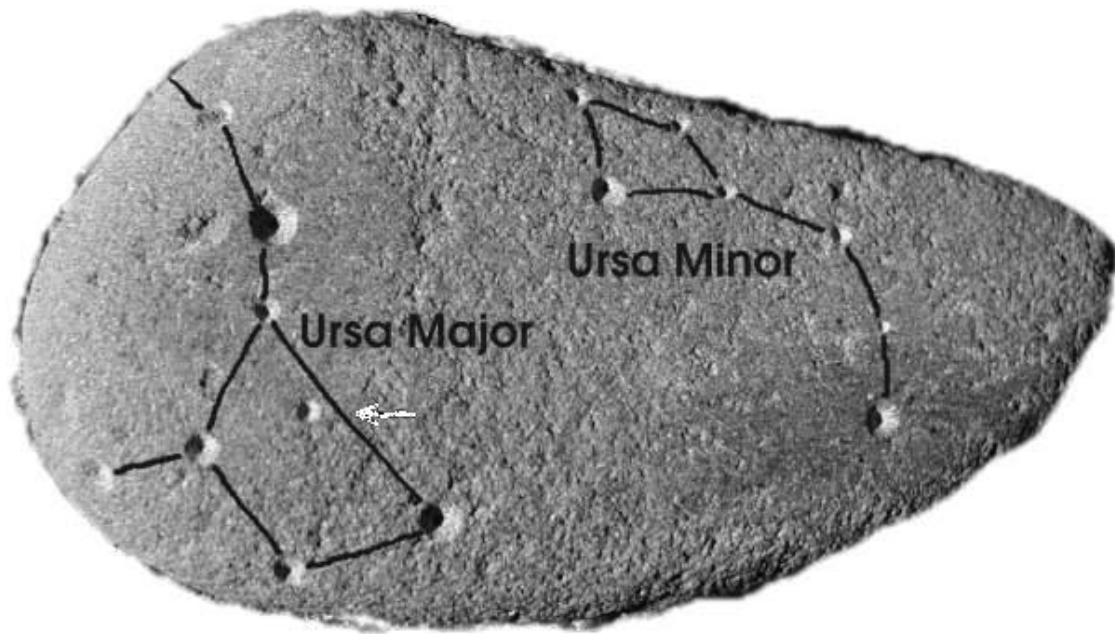
Only the relationship of the stars to the horizon and the equatorial would change, plus the intersection of the equatorial with the ecliptic (the location of the equinox). This is what I have proposed in the previous chapter and from comparison with other data, this seems to be the case. I'll describe the change in the skies further below.

A clear indication of the changes in the axial inclination probably remains obscured as yet among Babylonian records. Velikovsky brings some of the confused records forward, but he uses these in support of other events, and nothing can be gleaned from their perusal.

The fact that the Earth's axial inclination was 30 degrees at an earlier time was verified when I started to look at alignments of Mesoamerican ceremonial centers with the surrounding mountains and volcanoes. See the chapter "Olmec Alignments" for details. The chapter titled "The Chilam Balam" includes other clear numeric instances. [\[note 13\]](#)

The Sky in Disarray

Even if I can only suggest the mechanism involved in these changes, I can be more certain in identifying the location in the sky to which the axis of the Earth originally pointed. There is a Lakota Indian myth or legend which states that, upon death, people enter heaven through a hole in the sky where there once was a star, located within the four stars known as "the stretcher" or "man-carrier" -- the box or pan of Ursa Major.



[Image: San Jose rock showing Ursa Major and Ursa Minor; courtesy of Keith Snyder.]

Physical evidence for this, notably far from the Mediterranean where we find most of the mythology, is an undated hand-sized smooth stone found in California by Keith Snyder. The stone had drilled holes which exactly match the stars of Ursa Major and Ursa Minor. The sizes of the holes which pockmark the stone are proportional to the brightness of the stars in the two constellations. There is one additional hole in the pan of Ursa Major which is not included in most contemporary star charts of the Big Dipper. It is inside the pan (the "stretcher") and just below the line connecting Megrez to Dubhe and closer to Megrez than Dubhe (noted with the arrow in the above image). [\[note 14\]](#)

Going by the Lakota lore, Keith Snyder thinks it is a missing star which is now a mythological hole in the sky. Going by the Saturnian lore, I think it is the previous center of the sky before 685 BC and the location of the *axis mundi* before the departure of the Gods in 3147 BC. This spot is no longer the center of the sky.

We can plot a line, from the old location in Ursa Major to the current precessional path of the North Pole, to suggest the path of the pole in the last 2700 years. On this basis the center of the sky shortly after 685 BC, after the change of the polar axis, was most likely located about six to eight degrees above the line connecting Megrez to Dubhe, and perhaps some distance west (counterclockwise). [\[note 15\]](#)

This new location was between constellations -- which is why none of the sources describe the new location to which the pole moved. At the end of Ursa Minor, opposite from Polaris, closest to Ursa Major, there is a star named *Kochab*, which translates as "star" from Arabic, but has been referred to in ancient sources as the "pole star." This is the one star of Ursa Minor nearest to Ursa Major, and also the star closest to the most likely new location of the polar axis. [\[note 16\]](#)

When the polar axis relocated, the circle of the equatorial would have relocated. The equatorial is a projection of the Earth's equator into space. It is thus a flat plane extending above (out from) the equator. Seen from Earth it is a circle in the sky connecting the east and west cardinal locations which is tilted at an angle above the south horizon equal to the complement of the latitude where it is observed (90 degrees less the latitude). This new equatorial cut a new path through the dome of the stars. The Universe had been defaced and the constellations had moved, claimed the ancients. But what moved, or seemed to have moved most significantly, was the relationship of all the constellations and the zodiac to the horizon. [\[note 17\]](#)

The other circle in the sky is the path of the zodiac, the ecliptic, a circle wobbles on a daily basis, and differently during different times of the year (because of the tilt of the Earth's axis). The overhead part of the zodiac moves up and down over the course of the year, traveling some 47 degrees up from its lowest position.

The intersection of this circle with the eastern and western horizon shifts from north to south (and in the reverse) in the course of each night, only standing still on the two nights of the equinoxes. (The location where the zodiac dips below the horizon changes much less in the tropics.) But one quickly gets used to this, even today, without the "zodiacal glow" which had clearly defined the ecliptic up to the early 19th-century AD; the location of the ecliptic in the sky can readily be found by spotting one or two of the planets or the Moon which move along the path.

If you live where the night sky is unaffected by electric lights or the pollution which enshroud our cities today, you become familiar with the stars. When these are identified in groups, the familiarity extends to the ability to recognize a constellation on a partially clouded night from as little as two stars. As the sky rotates each night, it seems to move constellations up and down in the sky as it rotates, expanding and contracting them. Changes happen also because at

different times of the year we see different portions of the dome of the stars. But, despite these distortions, constellations can be easily recognized because the changes from night to night are minor.

However, when you move to a different latitude from where you grew up, it is initially very difficult to locate the constellations with which you were familiar. Nothing looks right; all the stars are in the wrong places. And that is what happened when the night sky was "defaced" in the year 685 BC. This rearrangement of the dome of the stars was noticed even as the changes were happening. [\[note 18\]](#)

These were not minor changes. If, as Hindu records suggest, Ursa Major slid down 6.5 degrees, we are talking about some constellations changing their location with respect to the horizon by 13 diameters of the Moon. Constellations directly below Ursa Major (Leo) would have seemed to move down and constellations 180 degrees removed (Aquarius) would have seemed to move up. Constellations east or west of these would have moved less.

There are numerous references to the changes in the dome of the stars, a "defacing of the Universe." Velikovsky notes many of them, but inevitably applies them to the wrong events, or places them in the wrong era. The very fact that the changes in the dome of the stars were remembered are an indication that they refer to a late era. I would propose that all these references date to 685 BC. None were remembered from 1492 BC when the inclination of the rotational axis changed from 25 degrees to 30 degrees.

To date there has been not the slightest inkling among catastrophists of the event of Phaethon as described in these pages. Extra-terrestrial objects named "Typhon," "Phaethon, and "Apep" plus planetary thunderbolts are all guessed after and transformed like so much silly-putty, but nothing has been put in chronological order, correctly identified, or explained physically.

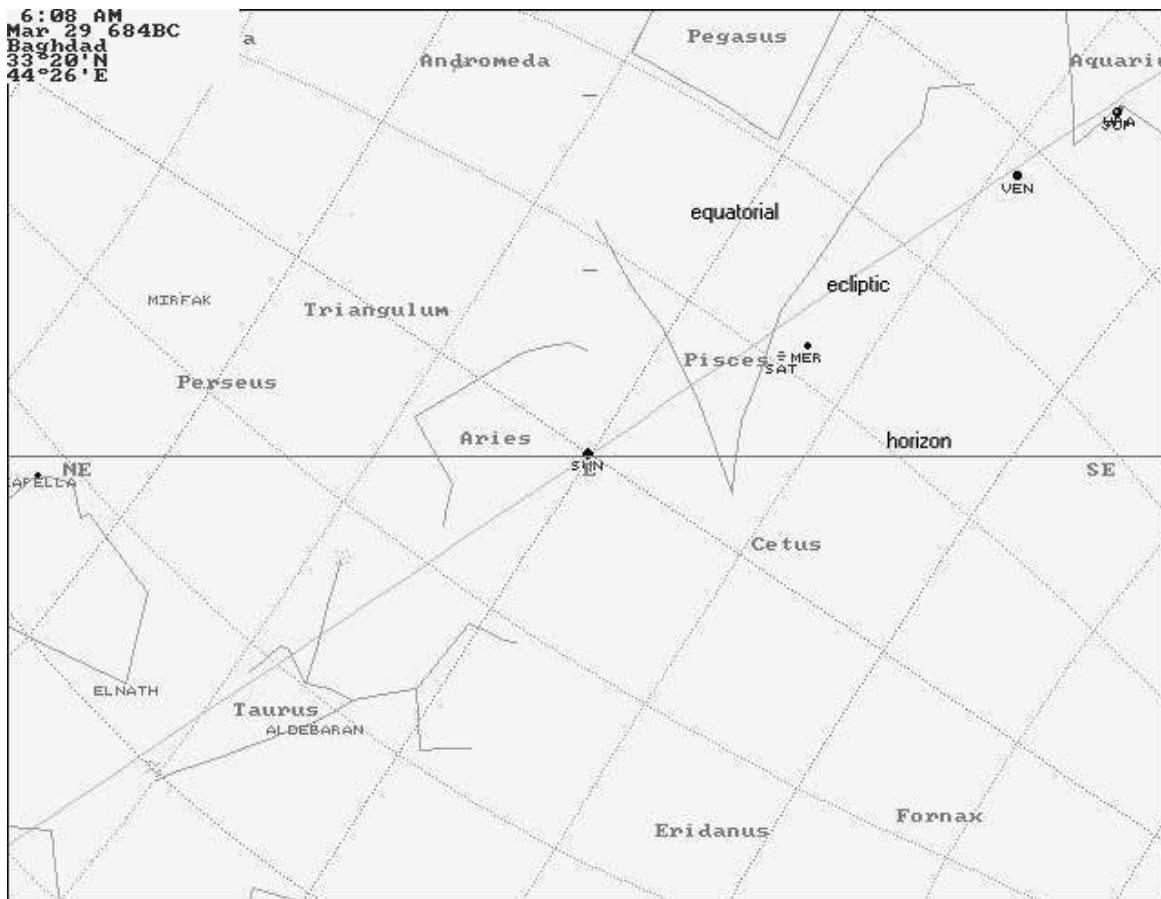
A Change in the Equinox

As the polar axis relocated, so did the intersection of the two great circles in the sky -- the celestial equatorial and the ecliptic. The two locations where these cross determine the rising of the Sun directly east on the vernal and autumnal equinoxes.

In 129 BC Hipparchus measured an annual "drift" of this intersection based on an 80-year record from a contemporary source. He found that the vernal equinox moved 46 seconds (of a degree) west each year -- west, that is, along the ecliptic, so that each later year the Sun would rise slightly further along the zodiac. This slippage has remained more or less at the same value. Today the accepted value is 49.6 seconds of a degree per year. [\[note 19\]](#)

As the polar axis moves, so does the equinox, slowly moving westward from one constellation of the zodiac to the next. Today the Sun rises at the vernal equinox near the beginning (the west end) of the constellation Pisces. If we calculate 2700 years back we find that the Sun rose at 15 degrees of Aries in 685 BC, which is at the center of the constellation Aries. (The "15 degrees of Aries" above is with respect to the delineation of the Zodiac in antiquity, which places zero degrees of Taurus, 30 degrees of Aries, at a location directly between the constellations Aries and Taurus.)

Today the division of the ecliptic into 12 segments has no relationship to the original constellations or the measurements used in antiquity. Today "zero degrees of Aries" is arbitrarily assigned to where the ecliptic and the equatorial currently cross. This defines the first day of spring for us. This is done for timekeeping and celestial navigation. Today this is not in the constellation Aries, it is actually near the west end of the constellation Pisces. In AD 150 Ptolemy was already suggesting placing "zero degrees of Aries" at the location of the equinox -- for the purposes of astrological charts.



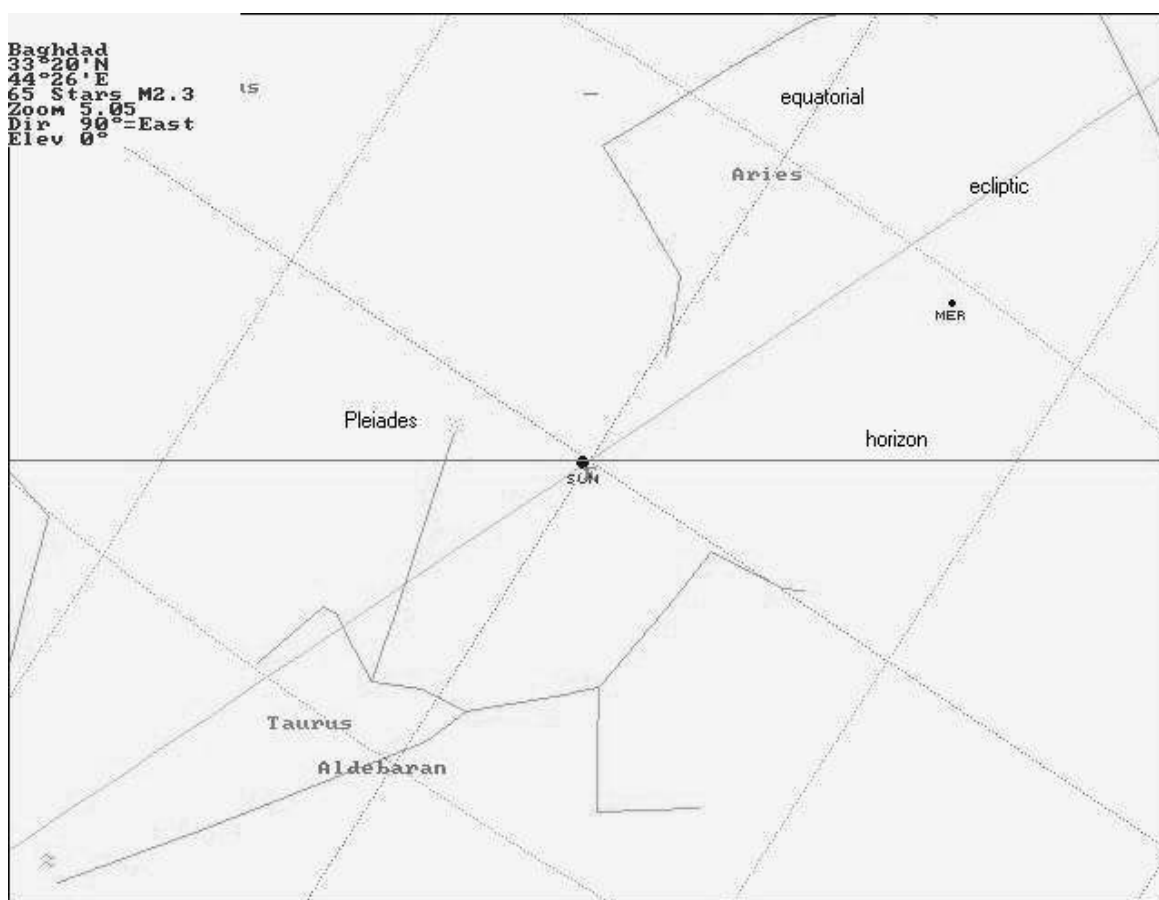
[Image: The equinox after 685 BC at 15 degrees of Aries as measured in antiquity. Looking directly east. The horizon, equatorial, and ecliptic are marked. The date is on the Julian calendar. Illustration by J. Cook, after SkyGlobe 3.6.]

I contend that before 685 BC (the shift in the polar axis), the equinox was located directly between the east end of Aries and the west end of Taurus -- at the start of Taurus. There are a number of indications which all point to this. The change happened in 685 BC and was spread over 40 days. The *Chilam Balam* notes the Sun "left its path" for 40 days. The most notable record from the Eastern Mediterranean is a section of the *Sibylline Oracle Books*. Although written nearly 800 years later, it recollects events spanning the movement of Venus and the Sun over a number of constellations which would account for the same time period.

But what I find more convincing, is that the Pleiades were held to be the start of spring worldwide, and if not associated with the start of spring, then the autumnal equinox, when the Pleiades culminated at midnight -- rose to the

highest point in the sky -- and thus also rose when the Sun set. After 685 BC it was discovered that the Pleiades no longer signaled the start of spring and that Taurus no longer started the cycle of the year. The fall culmination of the Pleiades had moved 15 days also. [\[note 20\]](#)

The Pleiades are an easily recognized cluster of stars located directly between the constellations (and zodiac houses) Aries and Taurus. But if we retrocalculate the skies on the basis of today, then in 685 BC the Pleiades did not start spring, nor, for that matter, and again by retrocalculation, for thousands of years earlier. This is because a retrocalculation does not account for the 15-day jump in 685 BC. [\[note 21\]](#)



[Image: The equinox before 685 BC. As depicted here, the horizon line should be rotated 15 degrees counterclockwise (the stars moving clockwise), which will place the Pleiades almost directly above the rising Sun. Illustration by J. Cook, after SkyGlobe 3.6.]

Zero degrees of Taurus is also the only location in the whole of the zodiac which falls exactly between two constellations. This is peculiar, but, as I surmise, it

was purposeful at an earlier time. The constellations of the zodiac do not occupy equal 30-degree spaces, and the constellations assigned to any of the 12 segments ("houses") are very arbitrary. The division of the 360 degrees was probably made long before 747 BC, when the year consisted of 360 days and the Sun would move one degree each day throughout the year. The sky of 360 degrees had been divided into 12 segments to match the 12 revolutions of 30 days of the Moon during the year at that time.

The zodiac had been established in Babylon probably since 1000 BC, or much earlier, since in the *Enuma Elish*, written in 1700 or 1600 BC, Marduk had ordered the constellations of the zodiac when he recreated the world -- when they became visible after removal of the Absu. Although originally consisting of 18 constellations, and thus of 20 degrees each, these had been reduced to 12 constellations. [\[note 22\]](#)

The Pleiades are seen as a cluster of seven stars located at the leading horn of the constellation Taurus -- just east of zero degrees of Taurus (in the zodiac as in use in antiquity). The location directly at the start of Taurus places the Pleiades almost directly above the rising Sun. [\[note 23\]](#)

The Pleiades had been held by almost all people of antiquity (including India, China, Mesoamerica, and South America) as the first index of spring. For people throughout the world, the sight of the Pleiades in the east just before sunrise -- when they had not been seen in the skies for six months -- signified the coming of spring and the start of the new year. Hindu calendar reforms after 600 BC mention that "the people wanted to have the year start [again] at the first showing of the Pleiades."

On the other hand, it has to be admitted that the return from death of Jupiter two nights after the autumnal equinox of 2349 BC -- rising up directly below the culmination of the Pleiades -- was remembered and celebrated for thousands of years. But this was a midnight showing of the Pleiades.

With respect to the division of the year into zodiacal houses, I would suggest that long before 685 BC a system of measurements had been imposed which had purposefully placed zero degrees of Taurus (which is 30 degrees of Aries) exactly at the midpoint between the constellations Taurus and Aries, and almost directly below the Pleiades. This lines up with the edge of the first horn of the bull Taurus, and will show the Pleiades above the horizon at the equinox -- and in line with the rising Sun. I suggest this was done because this location had been the start of the year forever, and was the location from which everything

else on the zodiac was measured -- in 30-degree increments, each representing 30 degrees of movement of the Sun originally. [\[note 24\]](#)

After the change in the heavens in 685 BC, the zodiac sign in which the Sun rose on the first day of spring was significantly different. An ephemeris program which keeps track of precession will show that, after 685 BC, the Sun rose at the equinox as the constellation Aries was at the horizon, rising at the center of Aries. This was at 15 degrees of Aries, as measured in antiquity.

A few hundred years later, in 200 to 100 BC, the Sun rose at the equinox on the longitudinal line for Mesartim in Aries. This was identified in antiquity as "8 degrees of Aries." Retrocalculation from 200 BC to 685 BC, shows that the Sun rose 7 degrees east of Mesartim. Thus after the displacement of the pole in 685 BC the Sun rose at $(7+8=)$ 15 degrees of Aries, as was also suggested above. [\[note 25\]](#)

The nova event of Venus in 685 BC moved the equinox 15 degrees. The vernal equinox thus rapidly shifted from the Sun rising at the beginning of the constellation Taurus to rising in the center of Aries. Before the changes of 685 BC, the constellation Taurus was already partially above the horizon as the Sun rose at the equinox and this had been so for centuries. The "Age of Taurus," with all the connotations attendant to the horned deities of antiquity, did not gradually slip into the "Age of Aries" -- the age of lambs and shepherds. The change came suddenly in 685 BC.

The change in the location in space to which the rotational axis of the Earth pointed is a change in the inclination of Earth's axis with respect to the orbit. After 685 BC the Earth was differently inclined toward the Sun; the climate would have changed. However, the change in the axial inclination would not significantly move the tropics or temperate zones, although it would move the Arctic Circle with respect to the pole. It would also not change the seasonal variation in climate. Climatic disturbances and fluctuations have been noted, however. [\[note 26\]](#)

The orbit of Earth also remained the same. Only the starting date of the year shifted -- by two weeks. A relocation of the vernal (and autumnal) equinox did not alter the calendars and would not have been noticed by farmers. Farmers do not use calendars to determine the time for planting, they use the weather. [\[note 27\]](#)

Although the altered sky was noted by everyone, the change in the equinox was only noticed by the astrologers and philosophers of the Middle East, Europe, China, and Mesoamerica. The sky had not really been thrown into disarray, but it had been moved -- suddenly twisted -- and, as was later observed, the equinox continued to rotate ever so slowly through the constellation Aries and further away from Taurus. It invalidated the tables which were used in Babylon to determine the start of the year and the predictions of lunar eclipses. The paths of the planets were confused and those tables also had to be redone. Comments have been made by 19th-century researchers about the records left by the Chaldean astrologers from this period (after 650 BC), mostly suggesting that the astrologers were making things up and paid no attention to the actual skies. [\[note 28\]](#)

At Nineveh, the principal city of the Assyrian kings, Assurbanipal founded a library in the 7th century. The library collected copies of temple records throughout Assyria and Babylonia, which included topics ranging from literature to mathematics and many letters of the kings of Assyria. When the combined forces of the Medes, Persians, and Chaldeans attacked Assyria in 621 BC, and leveled Nineveh, the library burned down, turning the clay tablets to fired clay.

David Brown, in *Mesopotamian Planetary Astronomy-Astrology* (2000), has investigated the astrological (astronomical) texts from this library in light of the extended correspondence between the Assyrian kings and the astrologers and scribes in their employ. [\[note 29\]](#)

John M. Steele, in a review of Brown's book, wrote:

"He [Brown] contends that all of the extant texts that are believed to have originally been written before the eighth century B.C. fit into a [earlier] paradigm that had no interest in predicting celestial events, and that we should see the period schemes, intercalation rules, etc. found, for example, in 'Enuma Anu Enlil' and 'MUL.APIN' as being aspects of celestial divination, not primitive or inaccurate astronomy."

Writers in the history of science, including Brown, have dismissed documents like the *Mul.Apin* by pointing out that it was obviously written around the concept of an "ideal" year of 360 days and an equinox at the rising of the Pleiades. I would suggest, however, that the *Mul.Apin* (which mostly consists of a chart of constellations) was indeed accurate in the era before 747 BC, despite the purpose, both before 747 BC as well as after, of divination. That does not

detract from the *Mul.Apin*'s status as a "scientific" source document for the Babylonians.

I suspect that lunar eclipses were not experienced at Babylon before 747 BC. Before that time the Moon's orbit was larger (30 days), and only after 747 BC, when the Moon's orbit had shrunk to 29.5 days, did it come close enough to Earth to have the umbra of its shadow show up on the surface of Earth. Even today, because of variations in the Moon's orbit (it has an eccentricity of 0.05), the shadow at times does not show.

This would explain why the first documentation of an eclipse is from 721 BC. When the eclipses started to appear sometime after 747 BC, they were frightening, especially since earlier solar eclipses were caused by Mars -- and inevitably accompanied by earthquakes, hurricanes, and electric bolts from the heavens.

The extensive correspondence between the kings and the astrologers was for the obvious reason that the skies had changed in 747 BC and again in 685 BC. There was a sudden urgency to develop correct methods of predicting lunar and solar eclipses, which showed up two to four times per year, and were totally unpredictable. The Babylonians never did figure out how solar eclipses were caused -- and little wonder, if their data included solar eclipses caused by Mars. Ptolemy, 800 years later also never found a means to predict solar eclipses. But by about 700 BC the lunar eclipses were correctly modeled and became predictable. Then after about 686 and 685 BC the skies changed, and all the calculation had to be started over. [\[note 30\]](#)

There is only a sprinkling of documents from before 747 BC because only the useful documents were retained. The *Mul.Apin* certainly was one of these, even if the year was no longer 360 days. Also retained was the *Enuma Anu Enlil*, a record of observations, detailing celestial events, water levels of the Euphrates, and economic indicators (like the price of barley). The *Enuma Anu Enlil* records included the *Venus Tablets of Ammizaduga*.

Special thanks to K Snyder for pointing up the San Jose rock.

Special thanks to S Bourke, AU, for the Kirkin story.

Special thanks to J Brookes for suggesting the Moon as the cause for precession.

Endnotes

Note 1 --

A more extensive derivation will be found in the chapters "The Chilam Balam books" and "Olmec Alignments." This requires a familiarity with the Mesoamerican calendar, described in the chapter "The Maya Calendar," and Mesoamerican thinking, some of which is discussed in the chapter "Language and Causality."

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Note 2 --

A distinction should be kept in mind between popular narratives about the creation of the world and actual events. The *Chilam Balam* relates the sequence of four instances of actual events of the past. But these were copied from the official records. What we see in the *Popol Vuh* is a constructed narrative, made at a time when the Maya considered all of history as repeating itself endlessly anyway, so that sequencing events separated by 4000 years was not a conceptual or philosophical problem. The authors of the *Popol Vuh* claim they had the official histories at hand, and, in fact, many details slip into the story of the *Popol Vuh* which could only have come from very old codexes.

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Note 3 --

In Europe away from the Mediterranean, throughout Northern Asia, and in North America the constellation "the Wain" was known as "the Bear," apparently since remote antiquity. Only by considering the Wain as representing a bear with four long legs extending below the pan of Ursa Major could this constellation be considered as dipping into the ocean. The Romans, however, did not consider Ursa Major as representing a bear. It was a wagon which endlessly circled the sky at the location of the polar axis.

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Note 4 --

"The Wain" is here translated from the Egyptian equivalent, an ox, a mummified ox, or a mummified ox leg, graphically depicted as early as 1500 BC, with an axis piercing the body of the ox. The fact that this has remained the same suggests that there was no precession of the equinox before the relocation of the rotational axis in 685 BC.

"Looking among the stars of Ursa Major" is also described in formal texts in the temple at Denderah, which was built (or rebuilt) in Roman times -- thus some 600 years after the polar axis had relocated away from Ursa Major.

Attempts in the 19th century to date the first Chinese emperor Yao to 2350 BC, by a retrocalculation based on precession which places the Pleiades at the vernal equinox are baseless, despite the fact that the results agree with the dating estimates made during the Han dynasty, by the compilers of the *Annals of Shu*, which did not involve the precession of the equinox. The Han dynasty scribes have the Pleiades appear at the spring equinox.

Why the compilers of the *Annals of Shu* would add this strange information in the 7th or 8th century BC, (which could be suggested from the fact that other astronomical and calendrical information was added at the time of the Chou or Han), is unclear, for by today's retrocalculations, the Pleiades did not define the vernal equinox in 700 BC, or, for that matter, as early as 1500 BC. Legge notes this in his commentary on the *Annals of Shu*.

Similar retrocalculations have been made in India in the last century for the start of the current era and for the Bharata battle (and placed variously at 3037 BC and 1432 BC), based on hints from the Vedas. However, these strange retrocalculations can be resolved. See for this "A Change in the Equinox" in this chapter.

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Note 5 --

The 26,000-year cycle is based on only a few hundred years of observation, equivalent to watching the passage of about 1 or 2 degrees of the 360 degrees of the path. The rate of precession, which currently is a movement of about one degree every 72 years (since AD 1600), has been known with some accuracy since the first century BC. There have been periods of time when the precession stopped, and when the value differed markedly from today's value.

Uwe Topper in "Cataclysms are the reason for our wrong chronology" *International Meeting of Chronologists*, Potsdam, 2008 (<http://www.ilya.it/chrono/pages/>), notes that the historical value for the number of years per degree has varied from 50 years (some early Babylonian sources in 330 BC, although this is disputed) to an early Greek value of 100 held by Aristarchus (210 BC), Hipparchus (130 BC), Ptolemy (AD 200), and confirmed by early Arab astronomers. Later Arab and European astronomers from AD 800

to AD 1300 used a value of 66 years. The current value of 72 years has been maintained since Kepler (AD 1600).

The "wobble" of the axis is not related to the wobble a spinning toy top experiences when the upward force at the support point at the bottom and the downward force of gravity through the center are displaced by some distance, forming a torque about the horizontal center. In the case of a toy top, the precession is the result of a torque which continues to be applied. Obviously, nothing of the sort is experienced by the Earth.

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Note 6 --

Electric effects such as these cannot be neglected. In the thirty years since the spin of the Earth has been measured with atomic clocks, the Earth has slowed down by 30 seconds in its rotation. This is much larger than what can possibly be accounted for under present theories of astrophysics (which, however, excludes electric considerations).

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Note 7 --

"The Sun's glare prevented observers on Earth from viewing NEAT's approach. But the SOHO spacecraft, stationed between Earth and the Sun, has an instrument called Large-Angle Spectrometric Coronagraph (LASCO), which blocks the Sun's brightest light, permitting the satellite to record the comet's dramatic swing around the Sun."

"As NEAT raced through the extended solar atmosphere, a large coronal mass ejection (CME) exploded from the Sun and appeared to strike the comet. The comet responded with a kink that propagated down the tail. The disk in the center is created by the coronagraph as it blocks the Sun's glare."

-- From <http://www.thunderbolts.info> TPOD for May 26, 2005. (Image Credit: Solar and Heliospheric Observatory (SOHO)/ESA/NASA)

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Note 8 --

It might be suggested that the change in the Earth's axis was due to another approach of Venus, as regularly happened at 52-year intervals (supposedly) in the remote past. Since 1492 or 1442 BC, the "52-year intervals" of close approaches of Venus have been 50 years up to 747 BC, and 52 years thereafter. See Appendix B "The Celestial Mechanics," where this information is developed.

Adding 50 or 52 years (or multiples) to the dates which could be identified as a previous approach of Venus (776 BC) does not yield a date anywhere near 685 BC.

[\[return to text\]](#)

Note 9 --

From an essay by Walter Cruttenden, "Comparison of Precession Theories: An Argument for the Binary Model" (Internet, 2003):

"It was Sir Isaac Newton, who had just developed his theories of gravity that said if the Earth did wobble it must be due to the mass of the Sun and the Moon, the only bodies considered close enough or large enough to have such an effect. But Newton's equations never did match observed precession rates."

"Consequently, the equations were substantially revised by Jean-le-Rond D'Alembert who added factors for torque and inertia, but even this effort proved a poor predictor of precession rates."

"Since then precession calculations have been continually modified and now include many factors beyond the original 'lunisolar forces,' including the gravitational effect of the inner and outer planets, tidal influences, effects of the 300 largest asteroids, and even a possible elliptical movement of the Earth's soft core."

"But as is apparent the calculations have become more of a 'plug' whereby inputs are gradually added or modified to fit the observation rather than being predictive or resting on solid theory."

This goes for the orbit of the Moon also. The equations describing the path of the Moon have to account for 5 separate motions, including a left-right wobble which allows us to see more than a half face of the Moon. The Moon bobs up and down also.

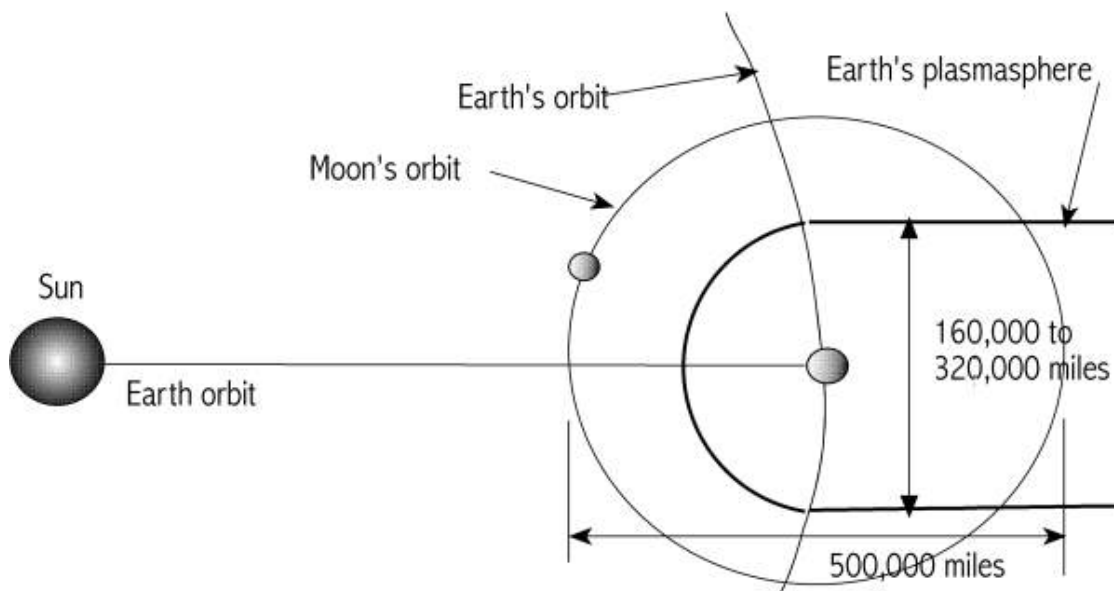
"A mathematical description (set of equations) that represents nutation [of the Moon] is called a 'theory of nutation.' In the theory, parameters are adjusted in a more or less ad hoc method to obtain the best fit to data."

-- <http://en.wikipedia.org/wiki/Nutation>

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Note 10 --

The orbit of the Moon is 250,000 miles (400,000 km). The plasmaspheres of planets extend 10- to 20-planet diameters from the surface, thus 80,000 to 160,000 miles (129,000 to 260,000 km) for Earth.



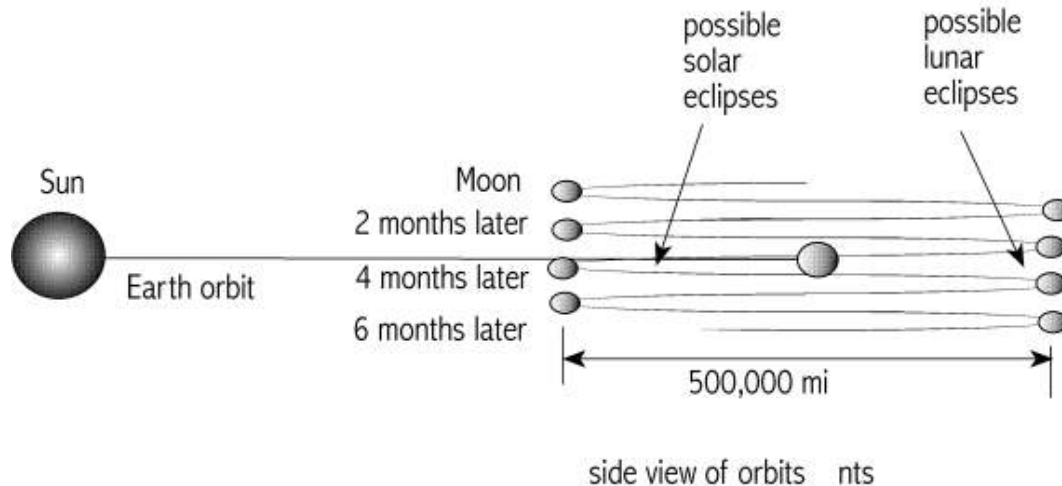
Path of the Moon during a month

The Moon spends most of its orbit outside of the Earth's plasmasphere
top view of orbits nts

[Image: Path of the Moon during a month; showing travel outside of the Earth's plasmasphere.

Illustration by J. Cook.]

Additionally the Moon's travel takes it some 20,000 miles (32,000 km) alternately above and below the Earth during the year. This affects the date when eclipses will be seen, but has little effect on its entry and exit from the Earth's plasmasphere. The actual travel around the Sun describes a rosette pattern -- not a series of semicircles.



Path of the Moon over a Six-Month Period

The Moon follows a spiral path which reversed in the up-down direction every six months

[Image: Path of the Moon during a half-year; showing travel above and below the poles of Earth. Illustration by J. Cook.]

The Moon does not have a significant plasmasphere or, perhaps, a tail (Thornhill).

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Note 11 --

Alfred de Grazia, in *The Lately Tortured Earth* (1983), writes:

"Yet Velikovsky, arguing the case for axis displacement, had earlier discussed a calculation by Weizacker demonstrating that an Earth transaction with a strong magnetic field would affect its axial inclination much more readily than its rotation [13]."

The reference is to an article in *Pensee*, by William Straka, "Straka: Science or Anti-Science," (1972).

From what happened to the Earth's magnetic field in remote antiquity, that is, before 10,000 BC (see the chapter, "Event of the Younger Dryas), we know that this is not true. The possibility of a magnetic couple, induced by the extreme Solar Wind passing by Earth, is as unlikely, since the planets' magnetic poles do not coincide with the axis of rotation. A constant applied torque is required,

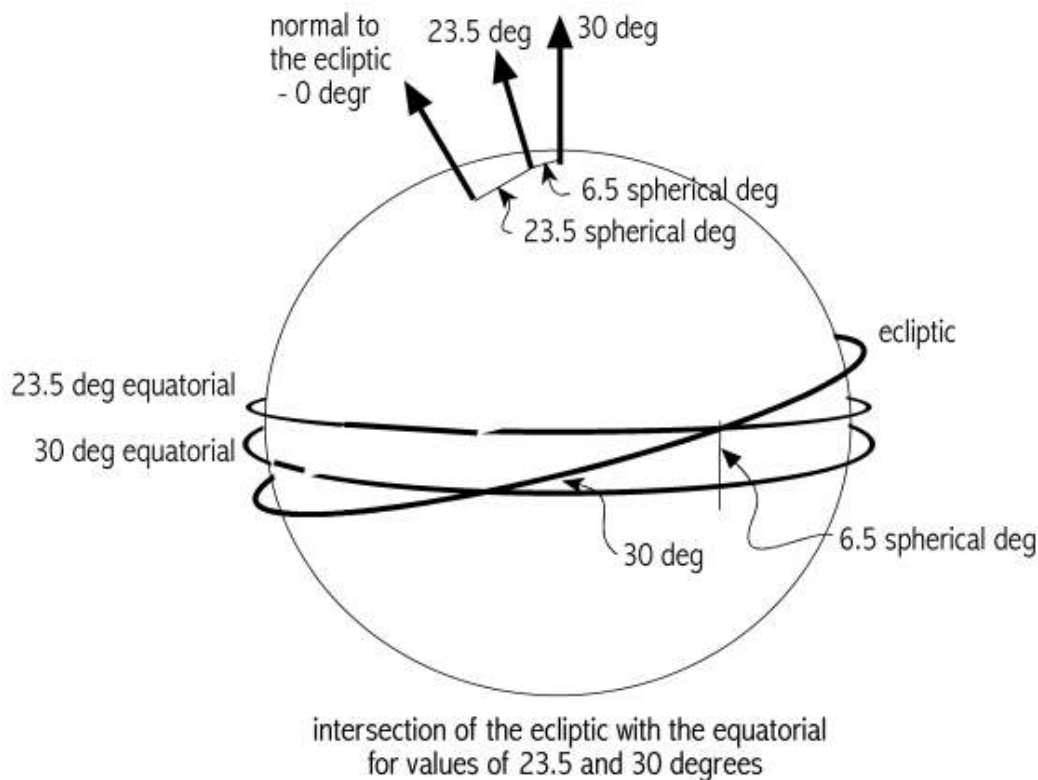
which calls for a force applied off-center from the Earth's axis. See Appendix B, "The Celestial Mechanics," for more on this.

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Note 12 --

Although a yojana is a terrestrial land measure (distance), it can be projected to the sphere of the stars which surrounds the Earth as a change in celestial latitude. A north-south distance of 100 yojanas on Earth represents a 6.5-degree change in latitude. The same angular measure would apply to the dome of the stars. A 6.5-degree change in celestial latitude in 685 BC would place the earlier location of the rotational axis of the Earth directly in the pan of Ursa Major.

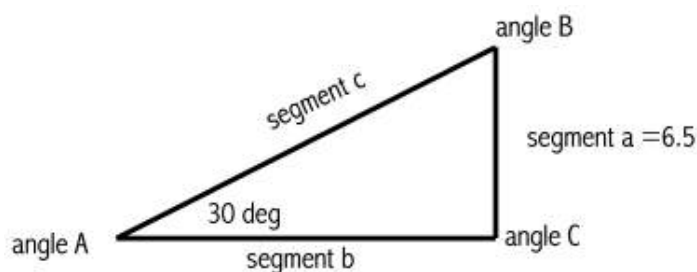
By itself, a 30-degree axial tilt will make only a minor difference in climate compared to a 23.5-degree tilt. The Arctic Circle would move closer to the pole by 6.5 degrees.



[Image: The intersection of the ecliptic and the equatorial, in Summer of 685 BC. Illustration by J. Cook.]

The triangle defined by the old and new equatorial projected onto the Earth (the ecliptic remains the same) determines how far the equinox advanced along the

ecliptic -- and thus how many days were lost in 685 BC. The intersection of the ecliptic and the equatorial is the equinox, and thus the start of the year. The amount that the equinox advanced along the ecliptic (from the old equatorial to the new equatorial) is found from considering the angles and spherical segments.



From the relationship for spherical triangles, $\sin c / \sin C = \sin a / \sin A$, $\sin c$ is found as:

$s(c) = s(\pi/2) * s(6.5/\text{deg}) / s(30/\text{deg}) = 0.226$ which is 13.1 spherical degrees [as the arcsin of 0.226].

Along the ecliptic (segment c) this represents a fraction of a year of 365.24 days, thus $(13.1 / 360) * 365.24 = 13.29$ days. Thirteen days of my estimate of 15 days are thereby accounted for.

Using plane trigonometry, I calculate 14.74 days.

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Note 13 --

Book 10 of the *Chilam Balam* includes three instances of spans of time, all given as so many months or years. I have been able to equate each of these to specific dates, but only by recognizing that the original author in each instance counted inclusively.

Following the statement, "it came about that the sun in Katun 3-Ahau was moved from its place for three months," quoted in the text is the note, "*After three heaps of years it [the sun] will come back into place in Katun 3-Ahau.*" (The use of future tense is peculiar to the translation into an Indo-European language.)

A "heap" is probably 5 (elsewhere known as a "bundle") and a "year" is a 260-day Tzolkin year. The fifteen years is another of the instances of inclusive counting for it turns out that the "three heaps of years" represent an interval of 14 Tzolkin years in the Mesoamerican Long Count calendar.

Fourteen Tzolkin years correctly states the number of days it takes for the same day-name and day-number combination to recur for a sunset at the same horizon sunset location of a zenithal passage of the Sun before and after the change from the 30-degree axial inclination to a 23.5-degree axial inclination.

This is key to an understanding, because 14 Tzolkin cycles of 260 days do not bring us back to the same seasonal day in the year. It falls short by about 12 days. The *Chilam Balam* thus says that the Sun set at the same horizon location as in the past, but 12 days earlier. This cannot be achieved except with a change in the axial inclination of the Earth.

I should point out also that the information as presented in the *Chilam Balam* refers to the setting location of the zenithal passage of the Sun at some location within the range of 15 to 20 degrees north latitude.

As I point out in the chapter "Olmec Alignments," zenithal passages of the Sun were important to the ceremonial centers of Olmec Veracruz and the Valley of Mexico. Nearly every center was aligned to have the Sun set at some mountain or volcano after a zenithal passage over the site. The difference of 12 days suggests that the information of the *Chilam Balam* was originally recorded for a latitude of 17.0 degrees (possibly Monte Alban). See the chapter "The Chilam Balam" for additional details. This is one of the clearest indications that there was a change in the axial inclination of the Earth -- in fact, to 23.5 degrees from 30 degrees.

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Note 14 --

I am indebted to Keith Snyder, who found and recognized the stone, and mentions the Lakota source in Ronald Goodman, *Lakota Star Knowledge: Studies in Lakota Stellar Theology* (1990), on his website at snyder_kas.home.mindspring.com/Indian_Stones.html. If the legend is still current, the age of the drilled holes does not matter.

The missing star might not be missing. A star exists at the designated location, although dim, with a magnitude of 6.1.

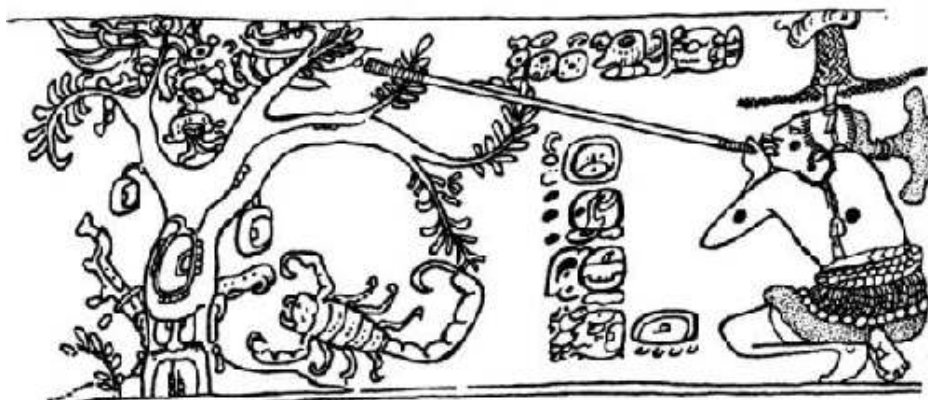
Interestingly, the centroid of the stone looks to be halfway between Ursa Minor and Ursa Major, at about the star Kappa in the constellation Draco. This is about where I would expect the axis of the sky to have moved in 685 BC, before eventually settling down near Kochab in Ursa Minor.

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Note 15 --

East and west in the dome of the stars is defined by the direction the stars seem to rotate. Facing south, west is to the right. Facing north, the stars above the pole star move left to the west; the stars below the pole star move toward the right, where the geographic east is located.

The original location of the axis within the pan of Ursa Major would be at 58.5 degrees of elevation, and a Right Ascension (RA) of 11.7 hours. Right Ascension is the number of degrees from the current vernal equinox, expressed in hours, where 360 degrees represents 24 hours.



[Image: A pottery Image: Hunahpu shoots Itzam-Yeh (Seven-Macaw). The text reads, "Done by Hun-Ahau; on 1-Ahau 3-Kankin he entered the sky, Itzam-Yeh." After David Freidel and Linda Schele "Maya Cosmos" (1993).]

One of the ball-playing twins of the *Popol Vuh*, who represent Venus in 685 BC (Hun-Ahau, Hunahpu), has to shoot down the bird Itzam-Yeh (Seven-Macaw), who had perched on top of the central axis of the sky, the World Tree, before a new creation could start. Itzam-Yeh, Seven-Macaw, today is thought to be Ursa Major. The image above describes the removal of Ursa Major as the center of the sky, but from the perspective of Mesoamerica. The bird reference, however, is to Saturn at the polar location before 3147 BC.

The scorpion below the tree is the constellation Scorpio at the base of the Milky Way. Scorpio has the same name in Mesoamerica as in the Eastern Mediterranean. There is a snake on the left (not shown here) which is the constellation Sagittarius. Therefore the North Pole is here shown from the perspective of the south, and thus is upside down. But it is seen, not from the south horizon, but from the edge of the Absu, somewhat below the equatorial. This is not really such an outrageous presentation. The jaguar paw reaching out from behind the tree trunk is often identified as Xbalanque, but it is the hieroglyphic sign for "te" (tree), and used together with the glyph "yax" on the other side of the tree trunk, identify the tree as "yax-te" or ceiba tree.

In Classical Maya cosmology the Milky Way has replaced the World Tree, which originally was the polar configuration from before 3147 BC, but forgotten by the Maya nearly 4000 years later, and only recalled from ancient graphical books. That the Milky Way is the World Tree is the opinion of archaeologists. See David Freidel and Linda Schele, *Maya Cosmos* (1993), and Dennis Tedlock, *Popol Vuh* (1985). However, the Milky Way does not intersect Ursa Major.

The date of 1-Ahau 3-Kankin is curious, for it does not match the Maya retrocalculated date of 4-Ahau 8-Cumku in 3114 BC usually listed for this event (actually as the *completion* of the previous creation). The date 1-Ahau 3-Kankin, as Freidel and Schele note, would correspond to May 28, 3148 BC Gregorian, more than a year before my date of 3147 BC. Actually it is -3148 in numerical notation, which is 3147 BC in BC/AD notation. This would suggest the point and date at which Earth was released from Saturn -- and would represent the initial location of the aphelion of the Earth's orbit (and what might be the earliest winter solstice date). I'll cover this in a later chapter.

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Note 16 --

The Hindu poem *Mahabharata* notes a number of locations for the pole star, which are all below the precessional path of the pole star as understood today. They are correct in Right Ascension for the 8th through the 5th century BC (when the poetry of the Mahabharata was created), but too far below the path of the pole as described today. These locations would also not hold for a more remote era of antiquity. Backward in time from today, the currently defined path of the pole bisects the region between Ursa Minor and Ursa Major and curves toward the tail of Draco. Scholars who have analyzed the astronomical data of the Mahabharata have taken note of the Right Ascension (before 685 BC) to

place the war in 1400 BC, but have failed to take the altitude into consideration. See S.P Gupta and K.S. Ramachandran (editors), *Mahabharata, Myth and Reality* (1976).

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Note 17 --

The horizon is probably the most important anchor point in visually recognizing and locating constellations.

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Note 18 --

At age 12 I moved from 55 degrees latitude to 42 degrees latitude. It took years before I could again instantly recognize constellations which I had learned earlier in childhood. And there were new ones.

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Note 19 --

The Babylonians (Chaldeans) may have noticed the precession about 50 years earlier than Hipparchus. In China, Yu Hsi noted the precession of the equinoxes around AD 330. John Henderson writes:

"This discovery is traditionally attributed to the fourth-century astronomer, Yu Xi ([AD] 307-338), though astronomers as early as the Han era had noted that the winter solstice shifted with respect to the lunar lodges."

-- John B. Henderson "Cosmology and Concepts of Nature in Traditional China" (essay, nd)

The Han spans 206 BC to AD 220. The "lunar lodges" are the houses of the zodiac.

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Note 20 --

Patten and Windsor, in *The Mars-Earth Wars* (1996), similarly come to the conclusion there was no precession of the equinox in antiquity, but use 701 BC as the terminal date of that condition.

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Note 21 --

In the first and second century BC it was universally accepted by all the Mediterranean civilizations that the vernal equinox was located at 8 degrees of Aries. This is actually a peculiar location, and certainly not selected by design at that time. The reader will realize that there is no way for a slipping equinox to have started at zero degrees of Taurus and have moved to 8 degrees of Aries in the span of a few hundred years under current conditions.

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Note 22 --

Almost all people everywhere established some sort of division of the night sky into 12 or 13 regions of marked significant stars, all to the purpose of noting the passage of the Moon. The Egyptians at a very early time used 36 notable stars for timekeeping at night. India divided the sky up into 28 sectors (called mansions) marking the progress of the Moon. It was a system dating from a yet earlier era. The Chinese year was also divided into 28 "lunar mansions" -- long before contact with India. We know of the Chinese divisions from Shang dynasty inscriptions at least since 1400 BC.

China reduced the zodiac to 12 constellations in about 100 AD, during calendar reforms. The new Chinese constellation names were both indigenous and received from Indian sources, who in turn copied Babylonian constellation names under Alexander's Greek influences after 330 BC. The European Greeks, and eventually the Romans, did the same, substituting Babylonian names for earlier local names. Thus the entire Asiatic and European zodiac of today derives from, or was modified from, the zodiac in use in Babylonia -- but in all cases long after the constellations were named in Babylon. See calendar notes in Appendix A, "Chronology."

The earliest surviving description of the Mesopotamian constellations is the *Mul.Apin* tablet series, with the oldest dated example from the 7th century BC. "The *Mul.Apin* was not a marginal source, but probably forms our most important document for ancient Mesopotamian astrology." -- vd Sluijs. The *Mul.Apin* marks the vernal equinox and autumnal equinox as follows:

"MUL.MUL (eta-Tauri, the Pleiades) and GIR.TAB (beta-Scorpii) were visible at the East and West points of the horizon and also defined the Vernal and Autumnal Equinoxes."

-- from <http://www.lexiline.com/lexiline/lexi171.htm>

This has led some to suggest that the tables date from 2340 BC, on the basis of a retrocalculation based on today's skies and today's estimate for the precession of the equinoxes. This is a ludicrous suggestion, not only because of the extrapolation to such a remote date, but also because it assumes that no changes were made in the data for the next 1600 years even though the skies (on the basis of an implied "precession of the equinoxes") would have changed continuously. It cannot be believed that the zodiac descriptions remained stuck at a value determined for the year 2340 BC for thousands of years. See for instance, Werner Papke, *Die Sterne von Babylon* ("The Stars of Babylon") (nd).

Most researchers have neglected this information, and write about the *Mul.Apin* as if it represented "an idealized year of 360 days" with an equinox at the rising of the Pleiades, a similar idealization. The *Mul.Apin* certainly dates to before 747 BC, although the oldest recopied texts date with certainty only to 687 BC. By stylistic content of the dozen copies (from Nineveh, Assur, and another location), they date to perhaps 1000 BC.

About the ecliptic, and for a later date of 400 to 300 BC, Robert Powell, in "The Definition of the Babylonian Zodiac and the Influence of Babylonian Astronomy on the Subsequent Defining of the Zodiac," PhD Thesis, Polish Academy of Science (2004), writes:

"According to this original definition the zodiac is defined by the two first magnitude stars Aldebaran and Antares in such a way that each is located exactly at the midpoint (15 degrees) of their respective sign, Taurus and Scorpio. Thereby these two stars define the central axis of the zodiac, which was the primary zodiacal reference axis for all other stars."

The first part of this statement is fact; the second part is guessed after. However, selecting Aldebaran as 15 degrees of Taurus places zero degrees of Taurus within two degrees of where I suggest the division of the ecliptic started in antiquity. If Taurus was not meant to be the first constellation to show above the horizon at daybreak at the beginning of the year, why was Aldebaran selected as one of the midpoints of the ecliptic? Powell continues with the suggestion of how the sidereal ecliptic was replaced by a tropical (solar) ecliptic -- where the equinox is set at "zero degrees of Aries" -- but has difficulty substantiating his claims (which I won't cover here). He does add a note on the selection of the equinox (apparently at a somewhat later date of 200 BC):

"Note that if there was a perfect correspondence between MUL.APIN's solar calendar and the zodiac, the vernal point would have to be located at 15° Aries, since Aries as the first sign of the zodiac corresponds to month 1 and in the Babylonian solar calendar the vernal equinox was placed on the 15th day of month 1. However, in System A of Babylonian astronomy the vernal point was located at 10 degrees [of] Aries and in System B at 8 degrees [of] Aries."

Changes were made in the Babylonian record keeping, but the reasons for the changes have eluded any contemporary analysis based on a continuation of present conditions into the past. The three values for the equinox suggest that the change in the heavens may have taken some years to subside, although all other data contradicts this.

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Note 23 --

Before 685 BC both the horizon line and the equatorial would be rotated about 15 degrees counterclockwise when viewed directly east. Thus the Pleiades would rotate 15 degrees clockwise with respect to the horizon, placing them almost directly above the rising Sun.

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Note 24 --

Note that the choice of a location from which the circumference of the night sky is measured does not depend on how many zodiacal constellations are identified or the number of degrees assigned to each. Thus, if at an earlier time, the Babylonians identified 18 constellations of the zodiac it makes no difference to the starting point between Aries and Taurus. We know from records of the 4th century BC, that by that time the zodiac had been divided into 12 sectors of 30 degrees each, even though the original reason for a division into 12 houses was no longer valid and the constellations for which the "houses" of the zodiac are named were a poor fit.

China was not wedded to a system which divided the night sky up into 12 equal segments of 30 degrees. The sectors of the sky were of unequal size, as little as 2 degrees, with boundaries along the longitudinal lines of easily recognized stars. Thus in 747 BC, when the length of the year changed, the Chinese had no reason not to reorganize the night sky over a full circle defined as 365.25

"degrees." This remained in use until circa AD 1400.

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Note 25 --

There are suggestions that perhaps the initial displacement of the equinox was not 15 degrees, but something closer to 9 degrees. We are only certain of the complete displacement of 15 degrees in about 300 BC or 200 BC, when the equinox had moved well beyond the initial 15 degrees along the equatorial.

Velikovsky (p. 353 ff) discusses Talmudic references to calendar changes made by Hezekiah, mentioning a doubling of the month of Nisan (the post-exile name for the first month of the year) to celebrate Passover. The Talmud actually explains that this was done to adjust for the lunar year -- which lagged behind the solar year. These "corrections" would have been made after 747 BC. Hezekiah made many reforms after 747 BC, cleaning out the temple, reinstituting the priesthood, both of which had been neglected by his predecessor Ahaz.

With the Moon's period of 29.5 days, representing an odd interval of the year, which was 365.25 days since 747 BC, the religious festivals which had been signaled by visible aspects of the Moon, like the new Moon or the full Moon, now drifted around the year. Religious feast days fell 9 or 10 days behind with every following year.

This clearly shows up at least once when mention is also made in the Talmud that Hezekiah moved New Year's Day, normally celebrated at the fall equinox, back 9 days from the 10th day of the seventh month to the first. Velikovsky suggests that it was the fall equinox which had moved back 9 days. But there is no need to make this suggestion. I suspect it was a lunar adjustment, which would have failed again the following year.

He also mentions Babylonian records of that era which at one point place the (spring) equinox at the 15th day of the month of Nisan, and on another clay tablet list it as the 6th of the same month -- 9 days difference. I suspect such differences are all due to the new orbital period of the Moon after 747 BC.

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Note 26 --

Velikovsky notes for the 8th and 7th century BC (in an unpublished document at <http://www.varchive.org/tac/polturn.htm>, "Political Turmoil Around -687"), "*Climatic change was again very significant and oscillations of climate marked the ninety years from -776 to -687.*" This sums up information from his book, *Earth in Upheaval* (1955), where he also writes of the depopulation of regions north of the Alps.

These years include the period of frequent electric contacts by Mars, concluding with the (unrelated) nova event of 685 BC. Disturbances north of the Alps were probably due to close passes by Mercury.

A depopulation of Europe, for that matter, is matched with similar demographic changes elsewhere. More properly, the demographic changes might be attributed to a combination of causes, involving not only climatic fluctuation, but more likely the physical devastation due to some nine plasma contacts with Mars during this period, of which we certainly have a clear record for the cities and citadels of the Middle East.

The climatic changes, however, were real; they are recorded in the tree pollen found in bogs.

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Note 27 --

The length of the delay in the start of spring, 15 degrees, is equal to about 15 days. A degree is just short of a day. In an abridged version of James Frazer's *The Golden Bough* (Theodor Gaster, editor, 1959), a text entry reads, "The Greeks gather and press grapes in the first half of October." An endnote explains:

"In ancient Greece the vintage seems to have fallen somewhat earlier, for Hesiod (Works and Days, 609 ff.) dates it to the time when Arcturus is a morning star, which was on September 18."

This would place Hesiod's composition of *Days and Works* to before 685 BC. The date of September 18 is about correct under the composition of the skies before 685 BC and with a 15-degree displacement of the equatorial. Other details of *Works and Days* place its composition to *after* 685 BC, however.

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Note 28 --

There are lengthy astronomical records made by the Babylonians, starting in the eight century BC directly after 747 BC (and other records supposedly since circa 2500 BC), involving the planets, the Moon, and the path of the Sun. The equinoxes, the shortest and longest days of the year, the distance traveled by the Sun each day against the background of stars, were all noted. But most of the records we have date only from after 650 BC, however. It looks like in most cases the data from before 650 BC was discarded.

Velikovsky wrote that, at times, as many as three differing records were kept of the path of the Sun and planets, suggesting changes in the Earth's orbit during the 8th and 7th centuries BC. It is true that multiple records were kept in this era, in sets of three, by the Babylonians, as well as the Indians and Israelis.

But Velikovsky also added information from the *Mul.Apin* which he misunderstood. He refers to the Enlil path, the Anu path, and the Ea path as if they were separate trajectories of the Sun. The *Mul.Apin* "paths," however, are sectors of the sky concentric about the polar axis, representing the constellations rising, roughly, in the northeast, the east, and the southeast. They are named after appropriate gods, so that the Enlil region represents the "air" above the ecliptic, Anu represents the central region of the sky which includes most of the "river" of the ecliptic, and Ea represents the "waters" south of the central region.
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Note 29 --

The period Brown has reference to is 750 BC to 621 BC. The correspondence with the astrologers was generated by the last kings of Assyria, Tiglath-Pileser III (745-727), Sargon II (721-705 BC), who took up residence at Nineveh, Sennacherib (705-681 BC) who rebuilt Nineveh, Esarhaddon (681-668 BC), and Assurbanipal (668-626 BC), who built the library which burned down in 621 BC.
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Note 30 --

The records of Babylon were translated into Greek in antiquity (on Alexander's orders), but apparently everything before 747 BC may have been discarded at an early date as being unreliable. In fact, there is also a notable absence of records until about 650 BC. A number of people have pointed out that solar eclipses (due to the Moon) would not have been experienced in the region of Babylon during this era.

Ptolemy lists 721 BC as the first lunar eclipse seen in Babylon. The first recorded lunar eclipse in China falls in 720 BC. The Chinese *Spring and Autumn Annals*, spanning the years 722 BC to 481 BC, records 37 eclipses.

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Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.017+ and deg=57.2+; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Chapter 26: Hezekiah and Babylon.

\$Revision: 42.2 \$ (star.php)

Contents of this chapter: [\[Jastrow: *Sun and Saturn*\]](#) [\[The Sibylline Star Wars\]](#) [\[Hezekiah and Babylon\]](#) [\[Philosophy, Religion, Science\]](#) [\[The New Religions\]](#) [\[Philosophy and Science\]](#) [\[Holding On to the Past\]](#) [\[The Presence of God\]](#) [\[Endnotes\]](#)

The *Enuma Anu Enlil* records have been used by the Saturnians of Thunderbolts.info as one of the sources for the concept that Saturn was known in antiquity as "the Star of the Sun" and in fact was considered to be the Sun -- especially when translated as "Sun Star." Cardona and other Saturnians who have justified this position with reference to an essay by Morris Jastrow, "Sun and Saturn," written in 1910, have been faulted for ignoring some of Jastrow's comments.

To quote Leroy Ellenberger:

"According to Morris Jastrow, Jr., in his 'famous' and oft-cited article 'Sun and Saturn,' Saturn was not given a specific name until after Venus and Jupiter were named, which is surely strange if Saturn was the primordial deity described by the 'Saturnists.'" [\[note 1\]](#)

Jastrow: *Sun and Saturn*

This sequence of naming, and similar faults, are entirely resolved if it is understood that this record (of the planets) was created in 685 BC or shortly thereafter. It explains everything. Note is made first of Mars and Mercury because of their interference with Earth since 806 BC. Venus was noted because in 776 BC it may have struck Mars (and the Moon) with a thunderbolt. Venus went nova along with Mercury in June of 685 BC. Mars and Mercury were also the two planets most frequently seen in the sky.

These planets were already in the record. Jupiter is noted next after it expanded into a coma later in July of 685 BC. Saturn, located almost twice as far from the

Sun as Jupiter, was not noted until later yet, when it also developed a coma, but after Jupiter had become very prominent, or perhaps had calmed down again. Saturn thus comes last in the record because it was the last to light up.

Dwardu Cardona, in an autobiographical essay titled "The Road to Saturn" (excerpted from *Aeon*, 1988) wrote, about the revelation of Saturn as a night Sun by Jastrow:

"In the fall 1975 issue of Kronos, [Lewis] Greenberg and [Warner] Sizemore published a half-page article titled 'Saturn and Genesis.' In it they briefly analyzed Maurice [Morris] Jastrow's 1910 paper, 'Sun and Saturn,' in which the Assyro-Babylonian belief in Saturn as a sun that shone at night is discussed at some length. ... When I unearthed and read Jastrow's original paper, I became convinced that Saturn, despite the author's expected disclaimer, must have been a true sun of night, radiating its own light."

Cardona takes no account of the fact that the portions quoted by Jastrow from the *Enuma Anu Enlil* date most likely to the 7th century BC, not to the era of circa 3100 BC or earlier. I would suggest that this "sun of the night" notion was an idea surviving from antiquity, and Cardona sees it this way, but understands it as contemporaneous with the "Age of the Gods," instead of an observation dating to after circa 2349 BC. Its use, however, needs to be contextualized to the era in which it was written and needs to be understood as answering to political circumstances.

I think that there would be no mention at all of a "midnight sun" unless it again became relevant in late antiquity, as in 685 BC after Saturn also gained a coma, following a much more massive and visually more impressive expansion of Jupiter. Also, I do not think Saturn was the main concern of the Babylonian astrologers, but Jupiter. It was Jupiter which had lightened the skies as the "midnight sun" for a thousand years.

It seems, from Jastrow's article, that the *Enuma Anu Enlil* has nothing to do with Saturn at the pole, since by the most generous guess the data sources only date back perhaps 1000 years before 700 BC. And I even doubt that, and certainly for the data on market prices for barley. Factoids from 3400 years previous would be useless as prognostication of current conditions to the compilers after 685 BC, in addition to the fact that guessing at the future was a recent preoccupation, dating back perhaps 500 years. Almost all of the tablets deal with the Sun, the

Moon, and the weather (a Moon since 2349 BC, not 3147 BC). Only the last 20 tablets deal with planets.

The *Enuma Anu Enlil* has nothing much to do with Saturn. Jupiter is indicated when "Shamash" is mentioned, and not Saturn. "Shamash" translates as "sun" from the Sumerian glyph, Utu. And Jupiter was the most recently recognized "sun of the night," not Saturn. Additionally, Jastrow is basing his "Sun equals Saturn" identity on an offhand remark by Hyginus, made 3300 years later, and on the translation of the name Shamash from Akkadian to mean "Big Steady Light in the Sky." So, Jupiter was not big and steady?

I would suggest that the astrologers of Babylon added annotations to their tablets to make sure that their notes would not be misunderstood. Shamash was the "sun of night" and understood to be the planet Jupiter. But after Jupiter lighted up in July of 685, Saturn followed suit, and started to blaze like a sun. Although this could be called "Shamash," it needed to be distinguished from Jupiter acting in the same capacity.

Jastrow says his opinions are based also on "contextual" readings. But here is the real context: The compilations were made under pressure from the Assyrians, who revived themselves in 740 BC. So we need to look at what happened after 740 BC. Certainly older records were incorporated, but not likely much further back than about 747 BC, when the skies changed. As I have noted earlier, others have pointed out that there are apparently no records for the period of approximately 750 BC to 700 BC.

Records from 1200 BC, when attention first starts being given to omens, tokens, and magical predictions, probably were not used, unless they dealt with mundane phenomena like early morning cloud cover -- if that was available at all. The objection posed by Ellenberger to the "order of naming planets" is invalidated in being accounted for by the time span of 685 to 650 BC (the period after the nova event involving Venus and Mercury), and has nothing to do with non-existent "records" dating back to 3100 BC. The Sumerians were not even writing in 3100 BC, and certainly were not at that time concerned with fortune telling or what the morning clouds meant.

... Mercury

No one, in the meantime, has explained the prominence of Mercury, which is almost impossible to see in today's arrangement of the Solar System. Even

Jastrow writes:

"On the basis of passages like these it was natural to conclude that Mercury was for some reason regarded as the planet par excellence. I accepted this view and for the later period it appears indeed to be correct. Traces of the special position accorded to Mercury are to be seen in the multifarious traits with which he is endowed in Greek and medieval astrology. He is the only one of the planets who is conceived as both male and female and embodies, as it were, a summary of the qualities of all the planets."

If this does not date these records to being very late, what will? Jastrow takes note of the lack of physical significance of Mercury, something we know already:

"On the other hand, it was difficult to find a satisfactory reason for this supposed preeminence granted to the smallest of the planets and the one most difficult of observation, whose actual role, moreover, in Babylonian-Assyrian astrology does not at all suggest that the omens connected with Mercury had any special significance."

Is this amazing? It is also a fact that many peoples (even the Celts in Roman times, 700 or 800 years later), held Mercury in great awe -- even as much as a thousand years after Mercury had last been clearly seen in the night skies. It was not only difficult to find a reason, it has proven to be impossible. No archaeologist has ever figured out the overwhelming prominence of a planet that could not be seen. Since 685 BC Mercury could almost not be found. It is only seen near the horizon just before sunrise or after sunset. Because of this Mercury is the least significant of the planets, yet in antiquity he held a position as the God of language, magic, crafts, trades, and travels.

We know of the change which removed Mercury from the heavens. Jastrow does not, and he assumes that Mercury has always been diminutive and insignificant.

... dates

I looked by chance at an essay, "History and Science" at the University of Oklahoma, concerning the *Enuma Anu Enlil* which read:

"For centuries... [they specify 1600 to 700 BC] ..., [records were kept] because the scribes provided counsel for the king...."

Never mind the rest. They did not, not during that period, only after 750 BC or so, and then the "kings" were Assyrian monarchs, the overlords of Babylon, who would impale you if you crossed them. Where does all this claptrap come from? I get the feeling that the *Enuma Anu Enlil* has been caught up in a series of misreadings spanning 2700 years.

The records in question collate information from the past, but all offer specific data only from after 650 BC. This has long been known of the Babylonian records, although Jastrow makes the unlikely suggestion that some predate the period of Hammurabi (circa 1700 BC in the consensus chronology). In actuality, the dates do not matter, for the Babylonian astrologers were attempting to forecast events for their Assyrian overlords on the basis of desperate guesswork, using any available records whatsoever.

That, in addition to Jupiter, Saturn was also called "sun" (Shamash) is no surprise at all. Saturn indeed had been the Sun at one time -- and certainly the "sun of the night" until 3147 BC. But it was Jupiter who had been the "sun of the night" after 3147 BC and with some interruptions for a thousand years, until 2150 BC.

Some 1500 years after Jupiter had diminished in size to become a star, the Babylonian astronomers were suddenly pressed into service by the Assyrian kings, because of the destructive close passes of Mars, and then, after the explosive nova event of Venus and Mercury, Jupiter -- the night Sun -- blazed again in 685 BC, and was followed soon by Saturn.

The names of the planets to be watched, which included Mars and Venus (and Mercury), were derived from a 3000-year-old tradition. In the newly developed astrological database being devised in the 7th century BC, Venus and Mars were thus named before note was made of Jupiter and Saturn -- and in that order, as Ellenberger noted.

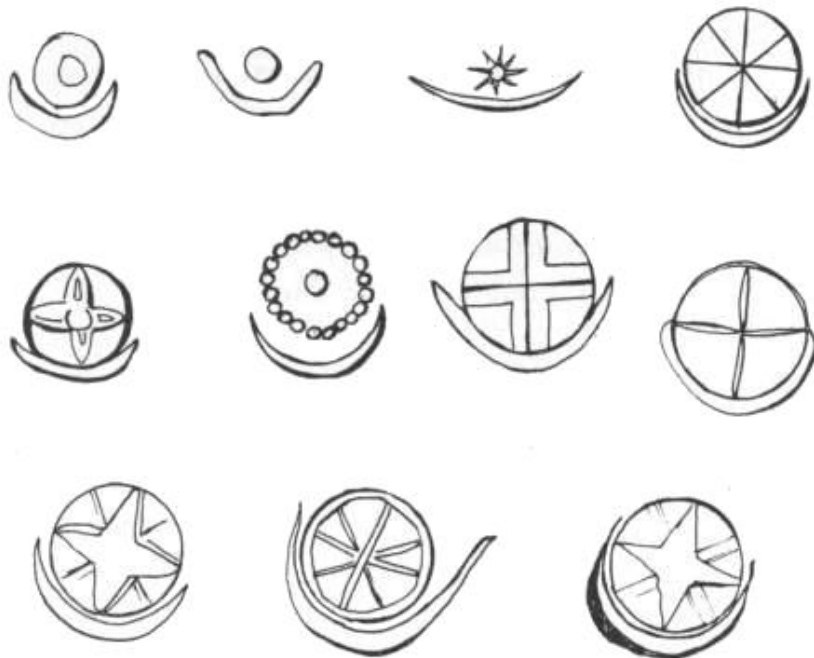
Everyone understood that Jupiter should be called a "night Sun" if it brightened. Duplicated use of "Shamash" could be sorted out when seen in context in most cases. Some tablets, however, were annotated with indications of whether the daytime or nighttime Sun was meant, and to which planet the name "Shamash" would apply in any particular instance. Seen in this context, the *Enuma Anu Enlil* is not a good source for suggesting that Saturn had stood in the sky as a sun before 3100 BC. It mostly speaks to Jupiter and certainly speaks only to conditions after 685 BC.

... Halos and Crowns

I think a greater fault is that none of the Saturnian commentators have done anything to address some of the truly strange wording of the tablets, like:

- "Saturn [Lu-Bat Sag-U] stands in the halo of the moon"
- "The moon has a halo around it and Saturn [Lu-Bat-Sag-U] stands in it."
- "If Shamash [(An) Ut] enters into the moon...." there is a note "Saturn (Lu-Bat Sag-U?) entered the moon".
- "When the sun [Shamash] stands in the place of the moon..."
- "When a mock-sun [Rum-me, sun-circle] stands over the moon (or) under the moon..."
- "If Shamash has a halo around it, there will be rain." with the note "Shamash of the day"
- "When Jupiter [Sag-me-gar] [stands] in the sun [An-Ut]..."
- "If Venus approaches Shamash, the King will perish." with a note explaining that here by Shamash the Sun is meant.

The essay, "Sun and Saturn," by Morris Jastrow is commentary on the translations by others, by the way. The parentheses and brackets in the quoted text above are insertions by Jastrow.



[Image: Various "star in crescent" illustrations]

from worldwide sources; after David Talbott.]

The illustrations above are from Talbott's *The Saturn Myth* (1980), and some might date to from before 3147 BC. The star image in that case consists of plasma streamers in glow mode connecting to Mercury (thought to be Venus) from Saturn. The left-right crescents and some other forms are thus missing.

Some more descriptions from Jastrow:

- A "sun-crown" above Venus...
- "Dilbat [Venus] is decked with two crowns."
- "A 'Shamash' crown above the moon, is explained as 'Lu-Bat [Saturn] [standing] by the moon.'"
- "If a mock-sun stands above the moon or below the moon..."
- "If Mars reaches the road of the sun [the ecliptic] ... there will be a famine."
- "The mock-sun and moon appear together," explained as "on this night Saturn approached (or 'was near') the moon."

The first three notes dealing with crowns need some comments from Jastrow. It is a footnote which unabashedly presents this information:

[footnote 24] *"These 'crowns' above Venus, of which various kinds are mentioned in the Anu-Enlil series -- dark, white, green, dark-red, broad, small, 'rain-bow crown', 'sun crown', 'moon crown', 'Jupiter crown' [reference deleted] -- clearly refer to rays above Venus, the different colors being ascribed to different planets standing in front of her, green = Mars, dark-red = Mercury, while other designations, similarly, describe the supposed specific causes, a 'rain-bow' crown being due to the rain-bow, a 'moon' crown to the moon etc."* [reference deleted]

Jastrow justifies the texts of the tablets in uniformitarian terms, as with:

"Strange as it may seem to us, the planet Saturn appears to have been regarded as 'the sun of the night' corresponding to Shamash as 'the sun of the daytime' and the cause of such light as the night furnishes. It was argued, that since there was a sun furnishing the light of day, so there must be some corresponding power which causes the illuminations of the heavens at night."

It is difficult to conceive of a more patronizing attitude toward the "magicians and astrologers" of Babylon. To think they reasoned that there "must be" a Sun of the night, is to assume that they were no brighter than 6-year-old children.

... refraction

Besides the fact that such absurd reasoning degrades the intellectual abilities of the Babylonians, this supposition (and others about "atmospheric phenomenon") is not necessary. The "crescent of the Moon," seen below, above, even on both the left and right, or seen in multiple units, plus the various colors, is simply the diffraction of the light of a very bright planet on approaching the last remaining band of the equatorial rings. This had been the case since 2349 BC when the Absu disappeared, but only at this time, at the press of the Assyrian kings, was it necessary to compile all available data and try to make sense of it.

The refraction pattern would be placed some distance away, probably $1/4$ or $1/2$ wavelength of the striations, and thus perhaps $1/4$ spherical degree to the left and right, and make it appear as if the planet were placed within a Moon. Mesopotamian "Star and Crescent" images show the star consistently well within what would be the orb of the Moon, a situation which could not happen if the crescent genuinely belonged to the Moon. The above and below crescents of the moon (a waxing or waning Moon in the first quarter or last quarter) only happen in the tropics.

The left and right diffraction, when a bright object was centered on the band of the remaining equatorial ring, would result in an image similar to the "double axe" image of remote antiquity, but on a somewhat smaller scale. Before 2349 BC the ecliptic dipped behind the intact Absu. Jupiter, with its gigantic coma, would at that time have been the candidate for the giant double axe imagery (known traditionally as a "labrys"), refracting its bright disk to the left and right as giant crescents. The refraction of light would be predominantly to the left and right because the structure of the rings of the Absu had a radial component (described in Egypt as "reeds"). The handle of the labrys axe, which is infrequently shown, is always too slim to be hafted to a large double-bitted axe head. The labrys is a ceremonial object of the Middle Bronze Age, circa 3200 BC to 1200 BC.

I should point out, however, that images of a star within an upturned crescent could date back to before 3147 BC. At that time the crescent at the bottom was the Sun-lighted lower half of Saturn. The star form consisted of plasma in glow

mode impinging on Mercury in discrete bundles. Like the dark of the Moon during the day, the unlit portion of Saturn would not show up visually during the day. But the identification of specific planets in the *Enuma Anu Enlil* records argues against the notion that such imagery dates from before 3147 BC.

It is the same diffraction of any point-source light of a planet or star when behind the last of the equatorial rings which causes the depiction of planets as four- and eight-pointed figure. The refracted light would be at right angles to the pattern of the equatorial ring. Refracted light would radiate left and right from the primary planet behind the ring. If the ring had a granular structure the refracted light would more likely form a "halo." Photographers use filters with etched lines to achieve similar effects.

The use of the phrase "mock Moon" implies that the Chaldeans recognized that some of these images were not real. But they were signs in the sky, and had to be accounted for.

Jastrow and others allowed that the situation of Saturn, or another planet, might be seen above or below the Moon because the Moon frequently runs off the ecliptic by some 5 degrees. What has not been accounted for, of course, is to have the Moon's crescent appear on the top or bottom. That does not happen in real life except at the horizon in the tropics.

It should also be pointed out again that the last equatorial ring was red. It caused Sirius to appear as red when the axis of the Earth shifted. The ring was recalled as a rope in the sky by the lowland Maya -- "and blood ran through it." In the *Popol Vuh* it is called the "river of blood." The tablets, on the other hand, suggest many colors.

The patterns would appear where the ecliptic crossed the ring in the sky. Because the ring was located in the south below the equatorial, these events would not happen directly at the equinox location (the intersection of the equinox and the equatorial), but would have been a month or so later in fall and earlier in spring.

... Saturn in Pisces

What needs to be answered also is why the *Enuma Anu Enlil* has so much to say about Saturn. Obviously Saturn was seen frequently, and seen in a position in the sky which caused the strange appearances of "standing in the halo of the Moon."

In fact, let us consider Saturn for a moment. Saturn moves at such a slug-like pace that it is unlikely that anything interesting would ever develop in terms of its interactions with other planets. It takes 30 years to get around the zodiac, moving only 12 degrees per year.

What would make Saturn more interesting would be the occasion for it to be seen through the last remaining band of the Absu. Then it would twinkle and sparkle and cause refracted patterns. I decided to research this topic.

The orbit of Earth had stabilized in 747 BC, and since Jupiter had last blazed in 2150 BC, it could be assumed that Saturn had also come to its final orbital position a thousand years ago. Thus an ephemeris would be accurate for the time period after 685 BC (the last change in celestial parameters). It would work if Saturn would travel through the location of the last ring in its travels along the zodiac.

Well, it turns out that in the fall of 685 BC (astronomical year), Saturn is on the zodiac at an elevation (at its highest point in the night sky) of 45 degrees at Babylon, 12.5 degrees below the equatorial. This places it within the last ring of the Absu, and thus it would be seen behind an ever-changing curtain of particulate matter, causing refractions left or right and likely below.

This depends, of course, on my estimates of how high in the sky the last ring of the Absu appeared. I have made some estimates of this in an appendix, on the basis of numerous reports of Sirius as colored red. The data is from the current era, and spread from AD 200 to AD 570. In each case Sirius is at a declination of 16.5 to 16.0 degrees below the equatorial. In September of 685 BC Saturn is at 12.5 degrees declination below the equatorial. A width of 4 degrees is reasonable for the remnant of the Absu.

The Moon would move through this position frequently, as would the other planets. Saturn would move away from this location in a few years, after having spent more time behind the last ring of the Absu than any other planet. Jupiter would move into this location three years after Saturn, but Jupiter had already blazed earlier, starting in July of 685 BC.

Thirty years later, in 655 BC (astronomical), Saturn would again spend some years moving through this position. And again in 625 BC. In 612 BC (in normal Eastern Mediterranean chronology) the Persians and Medes burned down Nineveh, the capital of the Assyrians. With that the astronomical records of Babylon ended.

I do not think these last two instances would have added anything to the record which was probably originally composed directly after June and July of 685 BC, for it seems 655 BC and 625 BC are much too late for a planet to still show a coma after the event of 685 BC. What we see instead is a long record all dating to the many months that Saturn had traveled through the path of the red ring in 685 BC. This would account for the many records concerning Saturn.

New Star Charts

What is also significant is how graphical star charts changed. Before 600 BC the constellations are depicted as seen from the vantage point of Earth. There was no other imaginable point of view. After 600 BC we start seeing reversed charts, and eventually globes, which require a vantage point from outside of the dome of the stars.

In time, the more subtle changes in the sky became public knowledge. It was of special significance because for most people the Earth was fixed in space, and it was the dome of the stars that revolved. The dome had been twisted and the axis had relocated. The effect of knowing that *there had been a change* in the dome of the stars would have been of much greater importance than any physical effects from the actual change. The change suggested a prime mover acting beyond the largest object in the Universe known at the time, the dome of the stars, which included all the planetary Gods. The concept of an entity which could alter the whole Universe eventually formed the basis of most religions of the world. That this had happened in one 40-day period of a summer, accompanied by planets on fire in the sky and then disappearing, was important also.

The Sibylline Star Wars

The *Sibylline Oracle Books* are texts from the first century AD, composed in Alexandria, Egypt, in Greek. The last few lines of the fifth volume, known as the "Star Wars" text, describe the blazing of Venus in 685 BC and the change in the skies -- written nearly 800 years after the event. These lines prophesied the future or impending end of the world in terms strictly coincident with events of 685 BC. It is probably the most spectacular evidence of the religious and philosophical importance of the events of 685 BC.

Oracle Books were all the rage in the period of 100 BC to AD 400. John's *Book of Revelations* is an example of one which was accepted into the canon of the

New Testament. Oracle books, or collections of visions and oracles, date back to perhaps the fifth century BC. The Roman senate employed a number of persons as keepers of *Roman Oracle Books*. They were consulted whenever difficult decisions arose. [\[note 2\]](#)

The *Sibylline Oracle Books* are mostly Jewish in sentiment and philosophy. They use a well-established metonymical style (substituting associated names, like "Babylon" for the Roman Empire) used by the oracle of Delphi and the prophets of Israel. A close examination establishes without doubt that the descriptions can be matched against the changes in the skies in 685 BC, not only in the movement of the planet Venus, but especially in the details of how the constellations were rearranged after a new equatorial was established, and all of it presented in poetic language. Franz Xavier Kugler examined the Star Wars text in 1927. This has been expanded upon by Malcolm Lowery and Livio Stecchini in the 1970s. An analysis, additional details, and diagrams may be found in the following chapter, "The Sibylline Star Wars."

Hezekiah and Babylon

There is a well-known promise delivered by Isaiah from God to Hezekiah, king of Judah, in about 690 BC (probably in early 684 BC). Hezekiah was sick and thought he would die. Isaiah agreed, but the same day changed his mind and told Hezekiah that he would live another 15 years. As a sign, God promised the following:

"And this shall be a sign unto thee from the Lord, that the Lord will do this thing that he hath spoken. Behold, I will bring again the shadow of the degrees, which is gone down in the sun-dial of Uzziah, ten degrees backward. So the sun returned ten degrees, by which degrees it was gone down."

-- Isaiah 38:8

It was a rash promise, but it can be explained. Velikovsky, in an unpublished document (hezekiah.htm at <http://www.varchive.org>), suggests that "degrees" should be read as such (*"maaloith in Hebrew is preferably 'degrees' and more so when applied to the sundial"*). Donald W. Patten and Samuel R. Windsor, in *The Mars-Earth Wars* (1996), however, disagree and suggest it should be taken to mean "measure." I also doubt that the "ten degrees" can be understood in terms of degrees of a circle as today. We are in an era 800 years before the

development of trigonometry and the measurement of "degrees." Ussher makes the point in his comments that Judah was not even using "hours" to measure the day, even after their return, much later, from Babylonian captivity.

Patten and Windsor place the "commotion of Uzziah" in 756 BC, and the "return of the shadow" in 701 BC. De Grazia places the commotion in 747 BC (-747), as does Velikovsky. Velikovsky places the return of the shadow in the year -687, on the basis of rabbinical sources, in the evening of the demise of Sennacherib's army. The rabbinical sources, however, only point to a disturbance in the movement of the setting Sun. We know about that. In -687 Earth experienced a repulsive electric contact with Mercury, detailed in the previous chapter.

If, as Isaiah suggests, the "ten degrees" were added earlier, then it might be suggested that the Earth's axial inclination to the normal of its orbit changed from some previous value and returned to 23.5 degrees in 686 BC, with the second Earth shock. I really doubt this. But the implicit suggestion of a previous event which would have moved (lengthened) the shadow, is exactly what all the catastrophic researchers from Velikovsky to de Grazia were looking for. There was no "commotion" to account for this; the reference to Uzziah is a foil. Uzziah only built the gnomon, "the sun-dial of Uzziah."

What is most likely is that the promise by Isaiah speaks only to the measured length of the shadow at the equinox. Before 685 BC the equinox fell 15 days earlier than after 685 BC, as I have related. On this earlier equinox date, March 6th, the Sun at noon reached an angle of 58.38 degrees above the south horizon at Jerusalem (31.78 degrees north latitude). After the summer of 685 BC, the Sun was lower in the sky on the following March 6th, rising only at 52.34 degrees above the horizon, and causing the shadow to be longer by a good measure on this day.

The first full moon after the equinox had traditionally signaled the celebration of Passover (on the following Sabbath). Thus it was important to know when the equinox was. This could no longer be found from the lunar calendar as in the era before 747 BC, but it could be calculated from the number of days since the last equinox and checked against the length of the shadow on that day.

But in the first year following 685 BC, the angle of the Sun at noon on March 6th was only 52.34 degrees above the south horizon. The shadow had (as a result) lengthened by one fourth of what it was earlier. This is a considerable amount, and reason enough to call it "ten degrees" or ten measures. The Sun, on

what was thought to be the day of the equinox, had "gone down" some large amount. [\[note 3\]](#)

There was no event which returned the shadow to its proper length, only the realization by Isaiah that the day of the equinox had moved (remember, he had changed his mind). Isaiah's promise held good, because 15 days later, when the "new" day of the equinox was reached, it was again 58.38 degrees, or very close to it. The shadow on March 21, 684 BC, was again the same length that it was on March 6, 685 BC, for the angle of the Sun at the equinox depends only on the latitude, not on the inclination of the rotational axis of the Earth. Isaiah had experienced the change of the date of the equinox already in the fall, and could have made the simple guess from that data. Isaiah, like many of the prophets, were competent astronomers.

What is interesting is that the sign from God also symbolized how many more years Hezekiah would live, for the difference between the old day of the equinox and the new date was 15 days. This is not mentioned in the Bible, but it is in line with the frequent acting-out by the prophets, as when Isaiah goes naked and shoeless for three years to demonstrate what would happen to the Egyptians after a three-year war with the Assyrians. *"This intimated that when that time expired, they likewise would be stripped of their clothes and go bare foot into captivity and bondage by the king of Assyria."* -- Ussher.

... Jerusalem moves 6 degrees south

Another discrepancy in the 7th century BC is noted by Donald W. Patten and Samuel R. Windsor in *The Mars-Earth Wars* (1996). The priests of the temple at Jerusalem permanently close the door through which, at an earlier time, the rays of the Sun would penetrate to the center of the temple on the morning of the equinox. Patten and Windsor conclude that Jerusalem moved south by 6 degrees of latitude in the 8th or 7th century BC, writing:

"On the basis of Kazmann's data [Raphael G. Kazmann, 'On the Orientation of Ancient Temples and Other Anomalies' (Aeon, 1990)], the conclusion here is that the latitude of Jerusalem slipped south by a total of 6 degrees between 965 B.C.E. and 701 B.C.E. During this time span there were five Mars flybys."

The date of 701 BC is, of course, from Patten and Windsor's narrative. The date of 701 BC marks, for them, the date when the length of the year changed --

which every other revisionist cosmologist has assigned to 747 BC. Patten and Windsor therefore conclude that the temple doors were closed after a change in the length of the year. The first temple, attributed to Solomon was oriented to face the northwest Atlantic. The light of the Sun was cast into the interior with a set of mirrors.

"If this interpretation of Kazmann's data is correct, the latitude of Jerusalem shifted southward by some 400 miles. Simultaneously the North Pole (spin axis) shifted some 400 miles in the Arctic Basin. If so, the North Pole net shift was away from Scandinavia and toward Alaska, the Yukon, British Columbia (and Seattle). As Jerusalem shifted southward 6 degrees, or 410 miles, Seattle, Vancouver, Anchorage, Fairbanks and Point Barrow shifted northward a similar distance and their climates became cooler."

I frankly cannot follow how Patten and Windsor arrive at the difference of 6 degrees in latitude. Moving a location south (or north) does not change the shadows at the equinox or the location of the rising Sun. The first temple at Jerusalem had an axis located 6 degrees west of north, pointing to the North Atlantic -- to the much earlier location of the plasma contact from Saturn.

Patten and Windsor fail to note that the temple built by Solomon was rebuilt in 516 (after the Jews' return from Babylon) but oriented to the true north-south and east-west cardinal directions. I might suggest instead that the sudden displacement of the equinox by 15 days in 685 BC and the change in the polar axis might have been an influence in correcting the notion of orientation which was already 2000 year out of date in Solomon's time.

... the latitude of Babylon

It was noted in antiquity that apparently the latitude of Babylon had shifted by about 2.5 degrees south, from 34.95 degrees north latitude to 32.55 degrees latitude, some time after 700 BC or 650 BC. That there were two values for the geographic location, that is, the latitude, of Babylon, which could be derived from recorded measurements of the longest day at midsummer, was noted by Ptolemy (circa AD 150), Arzachel (circa AD 1050), Kepler (circa AD 1600), and Kugler (circa AD 1910). The records date from 700 to 650 BC. Kugler worked from original sources. However, there was no change in latitude; it was an inadvertent misreading at the time the inclination of the Earth's axis changed.

In antiquity the "latitude" was expressed as the ratio of the longest day to the shortest day, and rather poorly integrated into notions of the angle of the Sun and the inclination of the Earth's axis. Babylon's "earlier" recorded ratio of longest day to shortest day was 1.50.

We cannot solve this problem with trigonometry as we know it, for trigonometry dates from about AD 300. The Babylonians, similarly, would not have used trigonometry. The latitude problem has remained unexplained for over 2000 years now. What I will suggest as a solution is that the ratio of 1.50 was erroneously derived. The following is based on how the Babylonians would most likely have proceeded.

The first date after July 25, 685 BC, that new values would be measured, would be the winter solstice. This is easily found, since the Sun would seem to be standing still, that is, not advancing along the horizon, for two to four days. The length of the day was 9 hours and 50 minutes. Taken into a ratio of the longest day at the previous summer solstice (at that time on June 6th, equivalent to June 21 of today), 14 hours and 52 minutes, which had occurred before the change in the heavens, this would yield 1:51 -- and was recorded.

Six months later a new ratio of 1.44 was computed, based on the new lengths of both the winter and summer solstice.

Had the Babylonians known trigonometry, they would have realized that the latitude can be found as the complement of the height of the angle of the Sun above the south horizon at the equinox. Without this, the Babylonians had to use the solstices to properly measure the shadow.

---- Babylon, ratio of longest day to shortest day ----				
axial incl	longest day	shortest day	ratio	notes
30.0 deg	14:52 hrs	9:06 hrs	1.63	prior
23.5	14:08	9:50	1.44	today

measured Dec 685, compared with Jun 685:				
30.0 deg	14:52 hrs			Jun 685 BC
23.5		9:50 h		Dec 685 BC
error	14:52	9:50	1.51	in error

measured Jun 684, compared with Dec 685:				
23.5	14:08			Jun 684 BC

23.5		9:50 h		Dec 685 BC
correct	14:08	9:50	1.44	correct

Considering that the Babylonians were deeply involved in their revised mathematics of lunar eclipse predictions, and additionally kept multiple records of the locations of the planets, even though some were obviously outdated, it seems reasonable that an erroneous value for the ratio of the longest day to the shortest day was also not discarded. That was a mistake.

Whatever happened to the ratio of 1.63 recorded before 685 BC? It was based on a polar axis tilted at 30 degrees, taken into a ratio based on the current axial inclination. It is not just wrong, but even useless. This ratio would have suggested that Babylon was located at 40.3 degrees north, a difference of 7.75 degrees, placing Babylon in the Caucasus mountains between the Black Sea and the Caspian. No one since Babylonian days would have believed that, and if this value had been recorded it would have been held as totally erroneous. Even the Babylonians of the seventh century BC would have discarded the data.

The additional erroneously derived ration of 1.51 was kept cause it looked to be nearly correct. The Sun had moved in 685 BC, that was certain. Who was to tell how things had changed with the Earth and the stars. Pliny had described it as "a slackening of creation," as if the Earth had slipped south.

... the Babylonians visit Hezekiah

The Moon had changed its period after 747 BC, to 29-1/2 days, and thus there were now slightly more than 12-1/3 lunar months in the year, since the year had also lengthened. This would cause no end of problems, for the lunar months no longer coincided comfortably with the number of days in the solar year. But after the summer of 685, there was the additional problem that the equinox had shifted.

As a comment on cooperative calendrical efforts in the Middle East, it should be noted that the Babylonians (Chaldeans), who had apparently celebrated the new year at the spring equinox based solely on the fact that this coincided before 747 BC with a new Moon, were now at a loss to figure out the date of the equinox, especially since the phases of the Moon now showed up at arbitrary times throughout the year.

Babylon sent observers to Jerusalem, for the Israelites knew the day of the equinox, since Passover was celebrated on the Sabbath following the first full Moon after the spring equinox. Jerusalem knew how to exactly find the day of the equinox, by counting days, and by measuring the shadow of a gnomon. The visit by the Babylonians is recorded in the Bible at 2 Chronicles 32:31.

William Whiston, translator (in AD 1737) of Josephus's *The Antiquity of the Jews* (AD 93), writes in a footnote, about the regression of the shadow of a gnomon by ten steps under Hezekiah (in 685 BC):

"... this wonderful signal was not, it seems, peculiar to Judea, but either seen, or at least heard of, at Babylon also, as appears by '2-Chronicles' 32:31, where we learn that the Babylonian ambassadors were sent to Hezekiah, among other things, to inquire of the wonder that was done in the land."

Ussher records this as:

"Now in the beginning of the 15th year of Hezekiah's reign, Merodach, or Berodach Baladan, the son Baladan, the king of Babylon, sent messengers with presents to him. They wanted to know the reason for the miraculous retrogradation of the sun which happened in the world."

The "retrogradation" is correct nomenclature. The Sun normally advances in the sky further east each following day, and further into the series of zodiac houses. What had happened is that the Sun had backed up half of a zodiac house, as noted by the end of the year 685 BC. We have to recognize (as has already been demonstrated in this text) that the prophets of Israel were competent astronomers. This is again demonstrated here, where the foremost astronomers of the whole Middle East come to Jerusalem to learn a few things.

Philosophy, Religion, Science



[Image: A 19th century graphic in the style of a medieval illustration by Camille Flammarion (1888); looking past the dome of the stars. Rather than finding God beyond the dome of the stars, the viewer is confronted with an endless expanse of additional wheels and gears -- the mechanics of the Universe.]

Venus lost its tail in 685 BC, and Mars no longer came close to Earth after 670 BC. Mercury also was not seen again anywhere near Earth. The coma of Jupiter had probably disappeared by 650 BC. The blackboard in the sky, which had taught mankind all of its conduct, had been erased. The Gods were gone. When Xerxes, in about 484 BC, entered Babylon to destroy its religious hold on the region, he found the statue of Marduk in a coffin. He melted it down.

Despite some continued local "Ignis Coelis" (fire falling from the skies), continued sightings of meteors, which slowly reduced in frequency over the next 1000 years, and the earthquakes which continued for hundreds of years, the lessons from the Gods had come to an end. In the sky only the stars and pinpoints of planets were to be found. The band of the ecliptic continued to glow like a highway until AD 1840. In the 20th-century, references to the "path of the Gods" are identified with the Milky Way instead (to confound "ancient legends" even further).

Yet plasma contacts between distant planets persisted for a long time after 670 BC. There are dozens of recorded observations in China, Arabia, and medieval Europe. Charles Raspil paraphrases an incident recorded in China in the 10th century AD, which caught my eye:

"On the morning of March 18, [AD] 904, Venus was observed near the Pleiades blazing like fire. The next morning, to observers, Venus appeared

to have developed three horns, somewhat resembling a flower, and then began to tremble and shake.

-- Charles Raspil *Planetary observations of the T'ang* (1994) [\[note 4\]](#)

Mars and Jupiter are also noted for anomalous behavior, but many of the observations find the planets in the wrong location, and thus the anomalies can be attributed to errors in identification. Strange celestial events were frequently noted elsewhere also, as recounted in European records of "fire falling from heaven." But humanity was no longer confronted with large globes looming threateningly above the Earth during the day or night. After 685 BC the planets kept their distance.

The planets, which had previously had been seen as the Gods -- Saturn, Jupiter, and Mars -- had been identified and tracked as they receded in the sky after 3147 BC and after 685 BC. But Venus was not added to the "four planets of antiquity" until after 600 BC -- primarily because of the strange path taken by Venus in the sky. And, in fact, the clear identification of Isis, Horus, and Thoth with the planets Venus, Mars, and Mercury often remained uncertain during the prior period when the Gods raged across the skies.

They were often misnamed and misidentified, confused with each other, or associated with the names of differing Gods and Goddesses (and stars also). This was to be expected since the planets were on unpredictable orbits, disappearing towards the Sun or deep into the night sky, and then appearing inexplicably close to Earth. As long as that happened, and as long as no "model" of the Universe existed, the planets retained their anthropomorphic qualities. A science of astronomy, based on the regular traversal of wandering specks across the night sky, did not develop until after the 7th century BC. [\[note 5\]](#)

The suddenly cleared skies caused a second immense change in humanity's perspective on the world, not unlike the change in 3147 BC when the Gods departed, but without the attendant catastrophic physical trauma. Whereas for 10,000 years everything had been ordered by the willful and unpredictable Gods, now there was nothing to base life's decisions on.

The New Religions

We can readily trace the development of all of the modern religions to the period following 685 BC, although many have much deeper roots.

... Zoroastrianism

In the seventh and sixth century BC, Zarathustra (born in 628 BC, a date derived in antiquity), a Persian, develops a new religion, Zoroastrianism, as a composite of Vedic and Persian religious practices. He retains the essential monotheism, equating the deity Mazda or Ahura-mazda with fire, and adds prohibitions against human and animal sacrifices. He is also the first to suggest the devil as a separate God, forever in conflict with Mazda for control of the world. Zoroastrianism becomes the official religion of the Persians. It is significant not only for its monotheism, but also for the change of worship from anthropomorphic celestial deities to a worship of a conceptual God, here expressed as the element of fire. Philosophically, Zoroastrianism introduced the concept of free will. It seems almost certain that Zoroastrianism had been influenced by the fiery battle of Venus and the Sun.

... Mithraism

One of the (later) minor deities of Persian Zoroastrianism, Mithra (which translates as "contract"), becomes the God of a new religion and contract between humans and a greater God. The concept of a covenant between this new, greater, and impersonal God is offered as a promise of hope, something which will pervade all the new religions except Taoism. [\[note 6\]](#)

Mithraism was first noted in Partia in 272 BC and became well established in Roman regions of Europe and North Africa by the first century AD. In a few hundred years, Mithraism spread far into Western Europe as a self-contained religion. It was a forerunner of Christianity, especially in the idea of a "new contract" between God and mankind. In the Roman cult of Mithraism, the name "Mithras" is understood to mean "mediator." Christ preached a new contract with God also, under the metaphor of God as a shepherd.

Mithraism takes on the iconography of a bull (the constellation Taurus) slain by the God Mithras (as represented by the constellation Perseus, standing above Taurus in the sky), and clearly includes a number of other constellations in the imagery. These are constellations close to the equatorial, not the ecliptic. All represent animals which one by one follow Taurus in appearing above the eastern horizon during the summer night skies.

"In Porphyry [philosopher, 3rd century AD], for example, we find recorded a tradition that the cave which is depicted in the tauroctony and which the

underground Mithraic temples were designed to imitate was intended to be 'an image of the cosmos.'"

-- David Ulansey *The Origins of the Mithraic Mysteries* (1989)

The cave as a metaphor for the cosmos is an interesting concept, for this can be extended to having a God standing outside of the cave, outside the cosmos. We have no clear idea what the real meaning of the Mithraic iconography is, although it could be guessed that it expressed a new order for humanity and the Universe: the old gods were dead, the Son of the Sun (Venus in 685 BC) had slain the horned bull (Taurus) associated with the former Gods (and the prior start of the year), and had moved the whole sky to a new starting point for spring -- to the constellation of the Ram. The understanding was that the start of a new world order had been signaled with a sign from a God who exceeded in power all of the old deities, a God who stood outside of the dome of the stars and planets and suddenly moved it one day to a new location. [\[note 7\]](#)

We need to add another set of twins to the list developed in the previous chapter. The iconography of Mithraism always includes twin boys (known as Cautes and Cautopates) on the left and right of Mithra and on each side of a surrounding depiction of the zodiac. The boys are holding torches, one holds his torch high and one with his torch pointed down. Both boys have their legs crossed, each with a different leg in the front. Others have noted that the crossed legs might represent the vernal and autumnal equinox -- the St Andrew's cross of the red ring of the equatorial and the yellow band of the ecliptic, as I had also noted for Mesoamerica. In some cases the crossed legs correspond correctly to the the vernal and autumnal equinox, in other cases these are reversed.

I would also suggest that the torch held down and the torch held high represent the winter and summer solstice of the Sun respectively after the fall and spring equinox. The torch held down represents the act of relighting the torch at the winter solstice (which is normally done by grinding the lighted end against the ground). The torch held high represents the full light of the summer solstice (they might represent the equinoxes instead of the solstices). [\[note 8\]](#)

... Taoism

In China, Lao-tse (604-531 BC) develops the philosophy of Taoism. Lao-tse's book, the *Tao-te*, proposes to explain "the change of the path." The path, which could metaphorically be taken as "the path of life," is clearly also the path of the

planets. Chinese cosmology had already advanced to imagine the Earth (although conceived of as a flat square of land) surrounded by a rotating dome of the stars. The shift in the heavens in 685 BC must have had a huge impact on the thinking of the Chinese. It was as if some giant external hand had suddenly twisted the dome of the stars. This seemed to have curtailed any further removal of the remaining "mystical" elements from religion and cosmology which had been initiated by the Chou. The power of a "heaven" was retained as a certainty, as an external force which would continue to dominate imperial politics, reinforced by later Confucian philosophy. [\[note 9\]](#)

We have to understand the "new religions" as having the same purpose as the "new philosophies" (discussed further below). Both sought a moral order independent of the older Gods, and both were meant to democratize thought and religious practices, in effect taking these functions away from a priestly cast. The coincidence of dates is as follows:

- Zoroaster (Zarathustra, Northeastern Persia, 628-?? BC), of the tribe of the Magi, developed Zoroastrianism (Mazdaism). Zoroaster understood the events of 685 BC as a battle between good and evil, with good eventually winning the battle, but not without continued support from the people. The Persian kings hired the Magi to officiate at their ceremonies and sacrifices. The monotheism of Mazdaism influenced Judaism during the Babylonian captivity of the Jews (597-536 BC), and spread throughout the eastern portion of the Middle East and into Arabia. It gave rise to Mithraism by perhaps 300 BC, and was a very important model for Christianity and, at a much later date, for Islam. [\[note 10\]](#)
- Lao-tse (China, 604-531 BC) devised the philosophy of Taoism. His existence may be in doubt, but that would serve his philosophy of restraint well. Taoism was discussed above.
- Confucius (China, 551-479 BC) extended to everyone the worship services originally only allowed to the emperor.
- Siddhartha Gautama, the Buddha, (India, 563-483 BC) founded Buddhism, one of the major influences in the reformation of Hinduism, and later a major philosophical influence in China. About the teachings of the Buddha, H. G. Wells, writes in *The Outline of History* (1961), "*It is beyond all dispute the achievement of one of the most penetrating intelligences the world has ever known.*"
- Vardhamana Mahavira (India, ??-527 BC) was the founder of Jainism, with ideas partially derived from Hinduism and Buddhism.

- The mystery religions of Anatolia and Greece (the worship of Demeter, Orpheus, Dionysus) all seem to date to the 6th century BC, although some elements, as, for example, the Eleusinian rites of Demeter, may be much older and more primitive. [\[note 11\]](#)
- Changes in Mesoamerica are harder (if not impossible) to trace. The Olmecs seemed to have worshiped (or feared) Mars in the 8th and 7th century BC (and Venus earlier). Elements of their culture resurface in Central Mexico, but with the addition of the cult of Quetzalcoatl, the sacrificed Venus, and a cult of the dead -- actually a cult of the afterlife. New alignments to the setting or rising sun on or about August 12 become a feature of ceremonial centers after 600 BC. The definitive site was the city of Teotihuacan -- "the place where men become Gods." See the chapter "Olmec Alignments."

The new religions were testaments to hope -- hope for a good life on Earth, hope for the abatement of evil, hope for an afterlife, hope for union with God, hope for victory of a nation, hope for the conquest of others. The specifics vary with the politics and philosophy of various peoples. The Christians hope for the return of their savior. Their hope lasts for 1200 years. The Mexicans and Maya hoped for the return of Quetzalcoatl for 2200 years. The promise of a redemption resulting in life after death is almost universal.

I should also point out that the older Gods were not simply put aside. From a look at the history of republican and imperial Rome it becomes obvious that, certainly at the official level, the honors and ceremonies extended to the elder Gods continued unabated for the next thousand years. But it should also be noted that no new Gods were "invented" as Alfred de Grazia wrote:

"No new sky god has been 'invented' in any part of the world since the Martian age [after circa 680 BC]. ... Nor did the Teutonic peoples invent new gods, try as they might, after the 'Ragnarok' or 'Götterdämmerung.' Nor did a new sky god come out of India, China, or America."

"Whence one concludes that 'real gods' cannot be 'invented' by the human mind as a pastime, or as a cold decision. Further, the abstract God of the Jews and of Christians and Muslim, and the abstract Heaven of the Chinese, are gods of philosophy. Insofar as a tangible presence is given to them, that presence becomes manifest in the behavior, appearances, visitations, rituals and iconography of the ancient sky gods and their heavenly hosts."

Philosophy and Science

Within 100 years after 685 BC, we see the simultaneous rise of philosophy in China, India, Mesopotamia (Chaldea), Israel, and Greece. The coincidence of start-up dates is amazing. The methods of building a philosophical system differ, but everywhere the systems include a sudden interest in history and in physics. About the sudden interest in materials and basic concepts, Kelley L. Ross writes:

"The multiple points of similarity between thought of Greece, India, and China, evident in the simplest terms in their respective treatment of the physical elements, cannot be accounted for by mutual influence, which does not seem to have existed at the earliest period." [\[note 12\]](#)

China will retain the Yin and Yang and the "five elements" of remote antiquity, and build onto this a political and moral philosophy. Chaldea and India devise a science of astrology. Israel collates the historical facts for the Bible and adds the rituals from antiquity. The Greeks start investigations which will form the core of Western physics, and write the first histories. [\[note 13\]](#)

About the period of 600 to 500 BC, Irving Wolfe wrote, in 1997:

"[There is] evidence for what I call a 'Kultursturz' or cultural crisis in which a large number of cultural elements underwent quick and sharp change within the same short period of time. These include the appearance of secular as opposed to strictly religious art, a host of new religions of a new type, new philosophies of a new type, writing, dynastic upheavals, the quick upsurge and removal of several tyrannical regimes, urbanism, new patterns of consciousness, behavior, and dreaming, new types of social organization, vast pan-Greek ritualistic athletic games, the institution of democracy and the use of money. All of these elements are totally different in spirit from those of the previous (Bronze Age) cultures."

-- Irving Wolfe, "The 'Kultursturz' At The Bronze Age / Iron Age Boundary" *Natural Catastrophes during Bronze Age Civilizations*, SIS Conference (1997).

Wolfe continues with:

"If all of these cultural revolutions can be correlated chronologically among themselves and to scientific evidence for similar upheavals well

documented in the geological, archaeological and climatological record, then we have before us the outline of a global natural event which not only ended one historical era, but led to the distinctive cultural characteristics of our modern age. After all, we are the children of this period of upheaval."

The "evidence for similar [geological] upheavals" clearly exists as part of the 8th and 7th century BC, preceding the changes of the 7th and 6th century BC which Wolfe speaks of. But the one single celestial event of 685 BC, which became the definitive opening of the new human cultural era, caused no physical upheavals.

The people of Mesoamerica also acknowledged the change in milieu, even though the written records attesting to this do not appear until nearly 2000 years later. The death of Quetzalcoatl is a concluding event in Mesoamerica, as it was for people elsewhere in the world, and no new celestial Gods are introduced after the 7th century BC. It is at this time, in fact, that we see the demise of the Olmecs and the rise of other Central American civilizations, and a Mesoamerican "physics" which becomes a system of control over the spiritual world, not unlike that of India and Babylonia. An intense interest in history also develops, soon aided with a fully developed script (after 600 BC) used to elucidate the much older graphical records painted on bark books. The interest in history at this time was worldwide.

"And here ends that interval of time which is termed mythological. From this time on history begins."

-- Varro, first century BC.

Varro is actually speaking about history after the 8th century BC, in reference to 776 BC, the first Olympiad. But prior to Varro Greek chronographers had already divided history up into two eras, the "mythological" and the "historical." The year 747 BC was the dividing line between the two eras. [\[note 14\]](#)

By the first century AD, historians are convinced that there is no sensible history more than a few centuries before their own time. Varro and other historians had never seen any of the wonders that the ancients talked about, nor had Herodotus in 400 BC. They considered the visits of Athena, streaking through the day skies with her long hair, or the attacks on the Earth by Ares, the bloodied stormer of walls, as "myths" concocted by their ancestors. Their attitude seems entirely modern to us. In the Greek city of Miletos, a new school

of philosophy sought to explain the world in terms of what was observed rather than basing explanations on the testimony of the ancients. [\[note 15\]](#)

"Human beings are distributed all around the Earth and stand with their feet pointing to each other"

-- Pliny, first century AD

Pliny's observation is paralleled by Greeks, Mesopotamians, Indians, and Chinese of the same era. "Everywhere upon the globe of the earth, men think their own place to be topmost," reads the Hindu *Suyra Siddhanta* of about the same date. Many people of this era knew that the Earth was a globe which "hangs suspended and does not fall," as Pliny wrote. Chaldeans knew that eclipses of the Moon were caused by the Earth's shadow, and could predict them. Aristarchus of Samos knew the Earth traveled around the Sun. Hipparchus (129 BC) calculated the minute annual shift in the Earth's equinox. Eratosthenes correctly found the circumference of the Earth. [\[note 16\]](#)

I am using these examples of a new physics of the Solar System to demonstrate that a watershed had been reached in subjective consciousness, which over the course of a few hundred years expands to an ability to incorporate observations into narratized mental spaces and explore them profitably. This particular model -- representing the Earth as a globe suspended in space -- could only be seen in the imagination.

The same is seen in China and India at about the same time, where natural history develops into "sciences," which depend on imagined mental spaces congruent with reality as observed. To explain everything, without reference to remote antiquity, it was first necessary to describe the physical world.

Not the same can be said for Mesoamerica at first glance, with its detailed congruence of real-world and spiritual-world interactions, based perhaps too much yet on the celestial observations of remote antiquity for our taste. But there was also a very different attitude toward the past. The people of Mesoamerica had complete illustrated records of the past, extending back 40,000 years, and in a uniform graphical format. Pictures don't lie; the Olmecs, Mexicans, Guatemalans, and Maya believed in the past -- unlike the people of the Mediterranean, who were always suspect of the tales and retellings of their forebears. In Mesoamerica texts were only added to the graphic books after about 600 BC.

Considered in detail, the thought system of the Maya exhibits the same rationality in navigating this intricately detailed imagined spiritual space. It does not involve "facts" as we understand them, that is, events placed in a continuity of time and a contiguity with other observations, but is instead totally based on firmly believed interactions between the realms of the real and the spiritual. Yet it represents a way of thinking which is far removed from mere acceptance of the world. The Mesoamerican "philosophy" also dates (I suspect) to after 600 BC. It is widespread and uniform until the Spanish arrive. The histories written at the time of the Spanish, of the ball-playing twins, written 2200 years after the events (and the surviving celebrations which still exist today), point to the stability of the underlying philosophy.

Some of the new science went awry, of course. The Babylonians (Chaldeans) had made astronomical observations dating back perhaps to 2300 BC. But only in the seventh century BC is this seriously developed into a "science" of astrology. This effort was a giant leap into an arena of correlation between observed celestial and earthly events which the same people had been incapable of even imagining during the previous 2000 years. What made this particular "science" valid to them was the assumption that the planets, identified with the Gods of old, still regulated the lives of men and controlled events on Earth, just as the Gods had always done.

Holding On to the Past

The ultimate effort everywhere was to explain mankind's existence and formulate a code of proper behavior. By 500 to 400 BC the Greeks had reached an intellectual level which is completely modern to us. And yet, at times the past peeks through. The same philosophers who could verbally extract the roots of quadratic equations, held fast to omens and espoused the prophesies of oracles with certitude.

The prophetess at Delphi, in effect, ruled the whole of the Greek political world for 1000 years with her instantaneous answers to questions about colonization, leaders, laws, enemies, and personal fortunes. Thucydides, writing about the Peloponnesian Wars (430 -- 404 BC), in detailing all the human failings in the course of events, never fails to append his histories with the pronouncements of Delphi to show how the prophesies had been accomplished. The *New Testament* uses prophesies in the same manner, as authentication. Plato, in his otherwise completely cynical writings, holds the Delphic Oracle in high esteem.

Omens, prophesy, and foretelling of the future remained very serious practices lasting well into the current era. (The *Sibylline Oracle Books* were still in circulation in the 16th century AD.) The concept of "free will" was developed in Greece in classical times (400 BC), but not widely accepted for another 2000 years. The Greek tragedies hold that "fate" runs the lives of men, resulting in plotlines often completely inexplicable to us as modern readers. The idea of "chance happening" does not take hold in Europe until well after the Middle Ages. [\[note 17\]](#)

The past maintained a particular hold on the people of South America and Mesoamerica. For Mesoamerica, the observation of Venus remained a primary theological obsession, especially for the Maya, who record yearly corrections to a base calculation of the location of Venus which comes closer in estimating its movements than the Europeans would be able to do for 200 years after they "discover" the Maya.

For the Aztec, the pacification of the Gods remains at the center of life. The Aztecs, the people of Mars, had successfully kept cosmic misfortune at bay, for hundreds of years, at the cost of many thousands of lives, when the Spanish arrived in AD 1492. Even in the last battle with Cortez's soldiers over possession of the city of Tenochtitlan, the Aztec warriors take time out from battle to drag captured Spanish soldiers to the top platform of the temple of Huitzilopochtli to rip out their hearts. The sacrifices were necessary measures as long as the return of the unpredictable Gods remained a possibility.

The Presence of God

It seems almost unbelievable that the altered night skies, and especially the rotation of the dome of the stars, would have the effect that it did in generating a half dozen new religions, initiating an historical awareness, and be the genesis of the study of physics. It is even more astounding to see these changes happening worldwide and at almost the same time -- in Babylonia, Greece, India, China, and Mesoamerica. The simultaneity of the interests in these topics is amazing, especially considering the lack of cultural contacts. This has been remarked upon by others.

If you look for the history of any of the Greek cities, or the nations of the Middle East, or China, you will see that in most instances history cannot be traced back before 600 or 700 BC. Everything disappears into legends. It is as if

the world suddenly woke up, and abstract thought was first allowed after 600 BC.

I should point out, however, that the changes in outlook did not come easily. Plutarch, writing in the first century AD, tells of Anaxagoras, after about 500 BC:

"Anaxagoras was the first to put in writing, most clearly and most courageously of all men, the explanation of the moon's illumination and darkness. His account was not common property, but was a secret, current among only a few. For in those days they refused to tolerate the physicists and stargazers, as they were called, who presumed to fritter away the deity into unreasoning causes, blind forces, and necessary properties."

"Anaxagoras was accused of impiety and sentenced [to death] for holding that the sun is a red-hot stone and the moon is of earthly nature. This was in disagreement with the view that these luminaries were deities."

By 650 BC we have a society of vagabonds and inland survivor in Greece. The coastal people had been decimated with the repeated strikes of Mars. The upland goatherd survivors had no earthly history of more than one or two generations, no genealogy except that which linked to mythical beings, and no homes. For the mainland Greeks and those of Asia Minor, the devastations of the 8th and 7th centuries BC had made a complete break with the expectations of the past and with the conservative attitudes of the past. The time and the place were ripe for something new (de Grazia).

The fact is that far-flung regions of the world all simultaneously came to the same conclusions about the universe and the world. This suggests the possibility of something global being the cause of the new sciences, philosophies, and inquiries.

Two recent events are possibilities. The earlier instance of the "Tower of Babel" event was in 2150 BC. This was the flaming of Jupiter. A second "Tower of Babel" event is dated to 686 BC (astronomical), and seems to be universally attributed to Mercury. These later "Tower of Babel" stories are worldwide, which also suggests that the event was recent, and not 1500 years earlier. But in both cases the "event" preceded a change in the attitude and awareness of humans. The fire of Jupiter in 2150 BC precedes a jump in awareness of around 2000 BC. This date can be understood as the time when the first historical interest seems to have developed.

But in terms of a timetable for the development of philosophy, science, and religion, the date of circa 2000 BC is far too early. The contact by Mercury in 686 BC happened directly before the blazing of Venus and Mercury in 685 BC. Mercury, I should point out again, is the only inner planet (besides Earth) with a magnetic field, although minor. It might be coincidence but this also preceded a jump in awareness for humans.

The other thing which stands out, besides the "Tower of Babel" event, is a change in the size of the plasmasphere of the Earth. This can be concluded from the precession of the equinoxes. Before 747 BC there was no precession of the equinoxes. This is certainly to be recognized from the multitude of data which points to the fact that the same constellations were held to be the centerpoints of the spring and fall equinox -- Taurus and Scorpio -- for the time before 685 BC, which can be extended to 747 BC. Precession was only noted after 400 BC in Asia Minor and after AD 300 in China when it became obvious. To notice the precession of the equinox requires the accumulation of data for more than a hundred years, since the rate is about one degree in a hundred years.

The lack of precession before 747 BC means that the Moon did not exit and reenter the Earth's plasmasphere in traveling "around" the Earth. Today the plasmasphere of the Earth has a dimension of 10 to 20 Earth diameters on the Sun side, thus 80,000 to 160,000 miles. The Moon today remains within this for only part of its orbit. The Moon moves outside the plasmasphere when it travels to the Sun-side of Earth, because the radius of the Moon's orbit is 250,000 miles, and the plasmasphere of the Earth is currently at best only 160,000 miles. That means that before 747 BC the plasmasphere of the Earth must have had a dimension of some 30 Earth diameters on the Sun-side -- 240,000 miles -- large enough to keep the Moon wholly within the Earth's plasmasphere.

It is not the Moon, however, or the precession of the equinoxes, that changed our behavior. These changes are much too slow to account for the sudden changed attitudes and interests after about 600 BC. What I am suggesting here is that the Earth would have been at a much different electric potential with respect to the surrounding space of the Sun. That probably happened after 685 BC. If the Earth's plasmasphere shrunk after 685 BC, then it was because the electric field of the Sun had dropped in intensity. And this in turn might have been the consequence of Mercury moving to an orbit close to the Sun.

... lowered potential

We cannot neglect that the Sun changed its output for 40 days in 685 BC, or the fact that Jupiter released a thunderbolt. But these were temporary events. We could assume that it represented an adjustment in the flow of plasma from the Sun (the solar wind) after the change in orbit of Mercury in 686 BC. In 686 BC Mercury for the first time assumed an orbit entirely within the orbit of Venus. This must have caused a radical change in the conductive path for the solar wind or at least a change in the electric field at the exterior to the Sun. Certainly the Earth also made an adjustment in its electric parameters if Mercury, Venus, and Jupiter did so.

There might be effects on the physiology of humans resulting from a voltage difference from head to toe, but I doubt it, for this is but a small fraction of the voltage difference from ground to the stratosphere or the ionosphere, or certainly to the location of the double layer of the Earth's plasmasphere.

The only thing I can suggest is that the era before 685 BC would have experienced much more active electrical interactions between the upper atmosphere (or ionosphere) and ground level -- in terms of thunderbolts, Saint Elmo's Fire, but especially in terms of things like ball lightning. I am suggesting this last because the psychological effects are still experienced today, even though ball lightning occurs only infrequently.

I will start with a note on ball lightning as a minor version of the larger crop circles. There are similarities in that both are manifestations of moving plasma. Ball lightning is an example of a spherical plasmoid, which is self-sustaining, at least for a lifespan measured in seconds or minutes. And then they disappear. But this is actually most likely a mode change for ball lightning. The disappearance would make the original grapefruit-size ball plasmoid in glow mode into an invisible sphere in dark mode perhaps ten or twenty feet (3 to 7 meters) in diameter or larger. This could easily engulf a nearby human, resulting in a feeling of "presence" of another being (as what also happens when we sense another human or animal nearby).

Various people have expressed everything from nausea to terror in the presence of extinguished (dark mode) ball lightning but especially in crop circles. My one-time experience after extinction of nearby ball lightning was of terror, being certain that there was "somebody else" near me -- in the middle of the night, no less. As others have said, once you meet up with ball lightning, you never forget. Typically perhaps, I think people will localize such an experience (I did), so that

it becomes associated with a place and a condition. Specific to crop circles, BLT Research (Internet) reports:

"A wide range of anecdotal reports exists of the effects on people. These reports have not been scientifically evaluated, but it seems clear that many people experience unusual physical effects in some crop formations -- and most often when the crop circles are relatively new. These effects range from the unpleasant (splitting' headaches, dizziness, disorientation, heart palpitations, a sense of 'dread') to the euphoric (a strong sense of 'peace,' a feeling of joy, a sense of 'oneness,' and a feeling of love).... Many people have also experienced the sensation of a presence of some sort -- other than their own, and invisible -- while inside crop circles."

"It is easy, perhaps, to dismiss such reports as being due to some sort of hysteria or over-excitement, and there seems to be no evidence of long-term effect to either people or animals. However, the fact is that a large number of field personnel who have spent considerable time in the formations, as well as some of the more casual visitors, have experienced one or several of these effects in crop circles all over the world. The fact that most of these experiences are reported in newly formed crop circles suggests there may be a remnant energy still present at some of these sites, to which at least some people are sensitive. It is most interesting that these effects do not seem to be present at all crop circles, and that, even when some people are affected in a particular event, other visitors will be unaware of anything unusual at all." -- BLT Research, <http://www.bltresearch.com> [note 18]

Because of the life-long recurring dread or feeling of potential contact for anyone who experienced this condition, I think it would take a generation or two of people who never experienced this, before we would see the intellectual effort to summarily dismiss the tales told by their parents and grandparents. Agnosticism fills the void of missing evidence -- the missing experiences your grandparents told you about. And agnosticism then searches elsewhere for meaning. That certainly was the case for the Greeks, and seems to have been the case in China and India and Israel. Nothing like it in Egypt, of course.

What was missing then, after 685 BC, was the potent and palpable presence of God. That was the difference, I think, between the period before 685 BC and the period afterward.

I started this text to suggest that the effect of lowering the Earth's negative charge (or specifically, the Earth's potential) after 685 BC, suddenly made us

humans much smarter -- philosophically, scientifically, and probably religiously also. We suddenly see a vast outpouring of literature, philosophical speculation, historical inquiry, all starting within two generations after 685 BC. The connection between 685 BC and the start of philosophy and physics is startling. There is a gap of two generations -- the time it would take for grand children to no longer believe in the old tales. But it must have taken more than just a generational difference, for religious traditions die hard. This change was sudden and radical. What I will suggest, therefore, is that the changes that were experienced were entirely due to the cessation of the effects of ball lightning and allied forms of plasma transfers between the Earth and the upper atmosphere and I will suggest "crop circles" instead of ball lightning as the prime agent.

... crop circles and ball lightning

The following is an example of very powerful ball lightning:

"In May or June of 1988 or 1989 around 2 P.M. CEST, Mr. Alois Fuehrer, a farmer of 38 years from Jungschlag, a small village South of Ottenschlag, Northern Lower Austria, 850 meters above sea level, returned early from fieldwork because a heavy thunderstorm moved in from the north-west. Fuehrer stood in the open on a wooden plank at the rear of the diesel tractor driven by his father."

"The vehicle had passed the last Ottenschlag houses southbound, when he noticed a falling object. It was round, 20 centimeters across, and 'seemed to come down like a toy balloon', vertical, soundless, without rotation. It was brilliant white, a steady light, and had 'something like a smoke trail'. Only 20 to 30 meters to the right of the tractor and of the road, after 4 to 6 seconds, the object hit the surface of a green summer barley field, flashed up and 'exploded with a loud, very high pitched bang.' Mr. Fuehrer said 'this was no thunder,' and noticed no heat or pressure wave. However, what he felt caused panic -- a tingling, and his hairs stood on end on his head, neck, even on his hands. He urged his father: 'Get out of here, the next one will kill us!', who also felt the electrostatic effect in the driver's cab. The diesel tractor continued to function normally."

"Arriving home, the Fuehrers still wondered what had happened and they went back to have a look on the same evening. They found a circular patch about 6 meters [18 feet] across in the impact area where green barley

plants had been reduced to ashes and smoke, 'as with a cutting torch.' The burn effect was strongest in the center. The soil had not been moved."

-- From William Corliss, <http://www.science-frontiers.com>.

Although there is certainly a close similarity between ball lightning and crop circles, I don't think crop circles are simply the result of ball lightning (farmer Fuehrer notwithstanding). In glow mode or arc mode, these forms (the ball lightning) are tremendously variable in their amazing displays and lifetimes, but the power level is simply too low to account for the large-scale effects produced at crop circles, like leveling a 30-foot diameter circle of full grown wheat crop in under a minute. Ball lightning is estimated to require only 25 watts of power to sustain a 10-inch diameter ball in glow mode for periods of 2 to 10 seconds. That is almost nothing. Even a ball which shines at a brilliant 5000 Kelvin (which has been observed) and melts a circular hole through a window, is not exhibiting much beyond what a quartz utility-light produces -- perhaps 500 watts.

There are simply no available data on the energy requirements of a grain crop circle. It would at any rate be difficult to evaluate the forces required to heat and bend the grain in a 30 feet (10 meter) diameter circle. There is, however, one report on a temporary crop circle formation on water, at the Loosdrechtse Plassen, a series of lakes in the province of Utrecht, in Holland, in June of 2002, by Martin van Wieringen, a Ptah Foundation (World Mystery Research Center) observer:

"After a short trip with my boat on the Loosdrechtse Plassen at 01-06-2002 around 3:30 pm, I saw a sort of a mist on the water surface which appeared suddenly. The result was a fast rotating cylinder of water with a diameter of approximately 20 meters on the water surface. This cylinder of water was "sucked up" from the surface with a height of approximately 2 or 3 meters. The pattern of the cylinder looks similar as a vortex pattern."

"First I thought it was a tornado, but that wasn't what causes this cylinder of water. This because the cylinder was flat at the top. The cause of this cylinder of water sprayed the water on top of the cylinder. The result looks the same as a combination of a tornado and the properties which are characterized of how crop circles are formed. After approximately 15 seconds the cylinder collapsed, but after a short break another rotating force was following a long "path" of approximately 50 meters. After this

path disappeared, a new cylinder of water rises from the surface. This cylinder had a diameter of approximately 8 meters."

-- *Dutch Crop Circle Archive*, <http://www.dcca.nl>

At 1000 kg per cubic meter, 630,000 to 940,000 kg of water were raised two to three meters above the water level, and forced to travel in a circle for 15 seconds. That is certainly a lot more energy than what is associated with ball lightning.

I have experienced waterspouts on Lake Michigan (as a pair), but they rose into the sky as funnels; they were not flat topped.

John Abrahamson, A. V. Bychkov and V. L. Bychkov have presented a collection of ball lightning encounters (still held to be "fantasies" and "delusions" by scientists), in "Recently reported sightings of ball lightning: observations collected by correspondence and Russian and Ukrainian sightings" (*Philosophical Transactions of the Royal Society*, 2002).

The contents of this paper reiterate what is already known about ball lightning, with the exception of the violently exploding dropped "ball of light" reported by farmer Fuehrer.

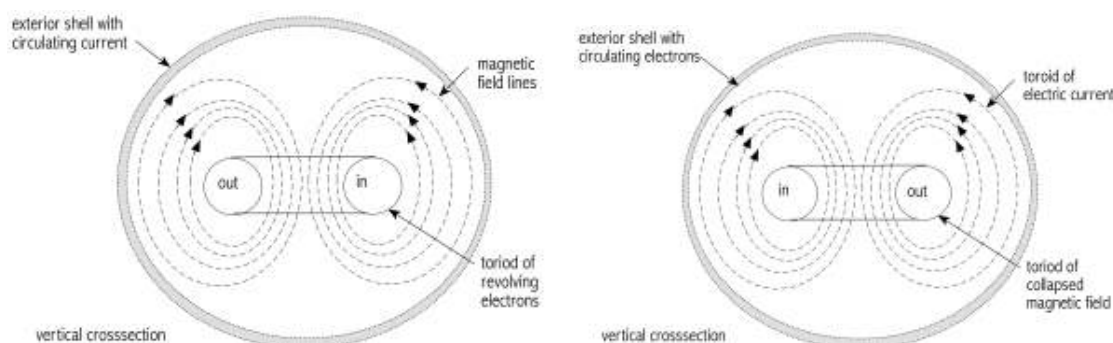
Abrahamson, with J. Dinniss, also constructed a model for ball lightning, detailed in "Ball lightning caused by oxidation of nanoparticle networks from normal lightning strikes on soil" (*Nature*, 2000), which suggest that ball lightning represents the slow oxidation of nanoparticles of silicon from soil vaporization due to high-temperature lightning strikes. Amazingly, almost all the properties of ball lightning can be ascribed to this chemical process.

Similarly, David Turner, in "The fragmented science of ball lightning" (*Philosophical Transactions of the Royal Society*, 2002), attributes ball lightning to a process of hydration of the outer shell of atoms or ions.

Lastly, and as yet another example, J.B.A. Mitchell, et alii, in "Evidence for Nanoparticles in Microwave-Generated Fireballs by Synchrotron X-Ray Scattering" (*International Conference on Phenomena in Ionized Gases*, 2007), passed x-rays through small ball lightning created and sustained in a microwave oven. The scattering pattern suggests very small "nanoparticles" internally, which would seem to confirm the work by Abrahamson and Dinniss, mentioned above.

There are many other research papers published. Much of it comes close to the effects experienced with ball lighting, although extensive efforts are made to explain all the aspects of ball lightning chemically. (It is additionally not at all certain if "nanoparticles" exist.) An explanation for the exterior glow is generally missing, something which electrical engineers would at once attribute to a space charge (thermionic emission), often represented as a "boiling off" of electrons. The most obvious and easily recognized space charge effect is the glow of electrons surrounding the cathode of a neon lamp.

Ball plasma is also suspected of setting up a resonant space, within which the electric and magnetic fields will assume a mosaic of patterns. Since ball plasma in arc mode is generally only 12 inches in diameter (1/3rd meter), they would be operating at a frequency of around 1 gigahertz ($300,000,000 / 0.3$). That is what is normally considered the "shortwave" or "microwave" range.



[Image: Type structures for ball lightning; after Lars Wåhlin.]

Lars Wåhlin (Wåhlin), in *Atmospheric Electrostatics* (1989), a book which deals with the generation of terrestrial lightning, identifies two forms of a toroidal current or a toroidal magnetic field, each capable of producing an accompanying magnetic field or current flow. Wåhlin suggests that the form with the internal magnetic field as being due to the constriction of an encircling magnetic field which pinches and cuts off a flow of current in a lightning strike. This effect has actually been observed by others. A collapsing magnetic field will induce a corresponding electric field.

The point of this is not to suggest that crop circles are degenerate ball lightning forms, but to support the fact that any moving plasma stream also produces a corresponding magnetic field. The vector product of the magnetic field and the current flow will produce a force attempting to change the direction of the current carriers -- in effect at right angles to each other. This is known as the

"right hand rule" of Force, Magnetic Field, and Current (where each of these is expressed as a vector) and is the basis for the design of electric motors and generators.

... fake crop circles

Most crop circles are hopeless fakes. Even the True Believers (with apologies to Eric Hoffer) say so, and I'll buy that opinion, even if their analysis is presented in a jargon of intersecting magnetic and geodetic lines, the relationship to ancient monuments, and "remnant energies" -- with much of the geometry of intersecting lines and the feelings deduced through dowsing.

I would dismiss "dowsing" as a source of information about crop circles (or anything), but it is a fact that the same investigators report detecting the feeling of dread and nausea after entering "genuine" crop circles. If this is the "remnant energy" of a crop circle event, what exactly is felt? The word "energy" in common usage represents "potential forces, inherent powers" -- things like that, but all related to human interactions. The word "energy" in physics means something entirely different, it is "work" -- in the most basic form it is a force moving a mass through some distance.

Anyone who has taken a course in physics or mechanics would be loath to give recognition to psychological or spiritual "energies." With this in mind, the question then is, What could be felt physically after a crop circle event? The feelings of energy, dread, and nausea seem to fade with time. Humans do not react to changes in the magnetic field, or to nuclear contamination (not quickly). We do react to changes in temperature and barometric pressure, the last of which is often recognized as the dread of an impending storm. But local barometric pressure is difficult to relate to the movement of plasma, because the inflow of the surrounding air would equalize the pressure within seconds.

But what can readily be felt, almost always, is static electricity. It remains for some time and only slowly leaks away. This is most likely the "remnant energy" as well as the "dread" felt by people in recently made and genuine crop circles.

Genuine crop circles, predictably (and as readily pointed out by any number of crop circle enthusiasts), are simple designs without symbolic significance, can be placed in fields equipped with alarms, take under 2 minutes to form, mostly come into existence at the edge of night and day (this is not entirely certain), bend grain at the nodes by (apparently) softening the nodes and then bending the

stalks at 90 degrees, blow holes in nodes (suspected as due to overheating of the sap with microwaves), leave scorch marks at the base of some stalks, alter the DNA of seeds and thus their genetic future, interweave grain stalks in contrary directions, pull selected exterior stalks into the circular design, deposit ferrous iron in the soil and on plants, leave behind distinct radioactive isotopes, change the local magnetic deflection by about 4 degrees (supposedly), and dry out the soil locally.

... infrequent crop circles

Real crop circles are actually very infrequent, and the number drops every year with a drop in the number of sunspots (like the auroras do also). Even the True Believers in the UK have noted that of a hundred or more crop circles appearing in a recent summer (2010), there was not likely to be more than 1 "real" one. It has also been noted that 98 percent of crop circles appear after the weekends, and after Bank Holidays. That says something!

This candid attitude of some of the UK researchers is refreshing (my source is Freddy Silva and his site <http://www.cropcirclesecrets.org>). But the problem I continue to have with the True Believers is that they are still convinced we are getting messages from aliens, and even see these as psychically induced in the fake crop circles. In other words, it is assumed that it takes an intelligence to produce the circles, although all we seem to be getting (in the fake circles) is a roundup of geometric forms from high-school geometry and physics text. It is the sort of thing any juvenile could do. Even the supposedly vastly clever binary encoded messages used the standard ASCII character set.

The whole idea of assuming an alien intelligence is another case of "intelligent design" as a solution to the inability to imagine long time-periods, minute small changes, and the possibility of intricate biological mechanisms, or, in this case, imagine what a self-sustained plasmoid could do.

The other thing I find objectionable is that the True Believers can only extend their imagination to contemporary wants and desires. A thousand years ago people would have suggested that aliens should bring us eternal life and gold. Today it is "advanced technology" and "new mathematical theories." I cannot believe this simplistic attitude. If I wanted anything from the aliens, it would be a deliverance from our ferociously murderous antipathy toward each other. Second would be deliverance from lying politicians and, third, greedy people.

... genuine crop circles

What I am suggesting here is that crop circles are real, although very rare (especially today), that these had probably been experienced much more frequently in remote antiquity, and that they are the result of a spherical geometry of dark mode plasmoids exiting the Earth's surface. This claim can be made despite the fact that there are many fake crop circles (estimates of 80 percent fakes by Colin Andrews in 2000, and estimated at 99 to 100 percent by Freddy Silvas in 2010).

In remote antiquity the experience of crop circles would have been much more frequent, and would have been convincing evidence of being in the presence of a God, localized to a sacred site. Entering the room where at night I once experienced ball lightning still sends shivers down my spine. Imagine being out in a field in Neolithic England and seeing grasses suddenly bending to lay down in a circular geometric formation, accompanied by the certainty of a "presence." The humans of the early Neolithic in England must have recognized the condition. Crop circles today appear with the greatest frequency where circular monuments were built in the Neolithic. God was visiting. [\[note 19\]](#)

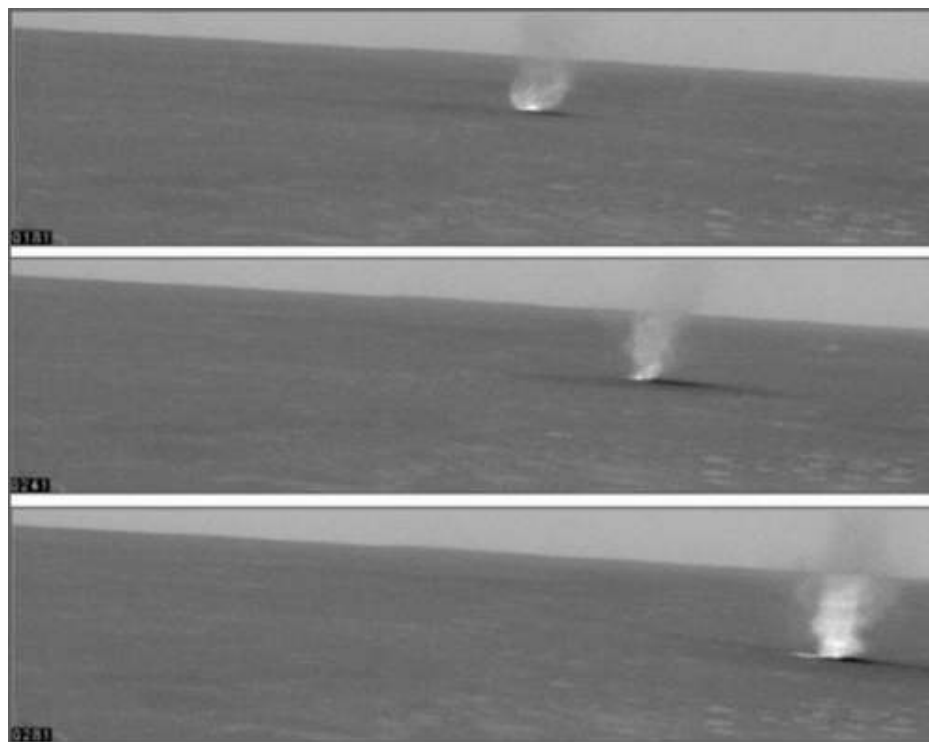
I think, then, that crop-circles are caused by rising elongated plasma streams in dark mode (imagine it to look overall like a giant rotating turnip or carrot), and thus of large sizes, 20, 30, or 40 feet (7 to 13 meters) in diameter. Other people have also reached the same or similar conclusions over the last decades, although some of it was given over to weather phenomena. But plasma streams and even ball lightning have only recently come forward for consideration. [\[note 20\]](#)

... plasma defined

Plasma is a diffuse stream of electrons or ions (or both). If it travels down from the ionosphere or upper atmosphere it will tend to form into tightly compressed streams. In various quantities of plasma flow, these are dust devils, waterspouts, tornadoes, and, in much larger form these are hurricanes. Lightning is plasma in arc mode (from intermediate cloud layers). "Plasma" is thus a term loosely meaning a continuous flow of electricity.

For dust devils, waterspouts, and tornadoes electrons or negative ions (O₂ and NO₂ anions) are moving to Earth; the flow of current is thus upward. This defines a counterclockwise circular magnetic field, as seen from above,

surrounding the stream of electricity. Any ionized material near the base will try to follow the circular magnetic field lines and rotate around the center of the plasma stream. This would include dust and dirt from the surface which would be positively ionized by induction. Tornadoes are the most pesky manifestation.



[Image: Dust devils on Mars; after NASA.]

Dust devils are seen on Mars, rising 300 hundred feet (100 meters) up from the surface, although there is almost no atmosphere on Mars. The tornado-like forms consist entirely of ionized dust. Electric arcing can be seen at the base where the devils touch the surface of Mars and where these cyclones concentrate current flow to arc mode. They leave behind blackened trails.

The base of a tornado is tubular, and rasps the Earth like a router. The magnetic field at the center is downward directed, and up directed at the outer edges. The loosened dirt, trees, cars, houses, and other debris are levitated electrically (aided by the upward directed magnetic field) at the outside of the funnel -- not in the interior.

As apposed to tornado forms, I would suggest that crop circle plasmoids rise out of the ground. If the crop circle plasmoid is of a limited size, then the flow of electric current will create a solenoidal magnetic field within the core of the

plasmoid, and directed oppositely on the exterior of the more or less tubular plasma formation.

The travel of an electric current, which will also exhibit itself in the stems of grain crops (since the stems are conductors), will produce a force at right angles to the direction of current flow and at right angles to a magnetic field, attempting to move the conducting stems into a path at right angles to the overall upward movement of the streaming plasma. The individual blades of grass would experience this force. The flow of electricity in the grass is upward at the outer circumference and otherwise inward directed. That would result in snapping the grass blades at right angles at the nodes (a weak point), and tangentially to the radius of the crop circle. And this is the effect that is seen.

Let me add perhaps another few qualifications. First, as suggested above, the plasma streams upward, based mostly on the Loosdrechtse Plassen experience. This could reasonably be expected also from the fact that the Earth maintains a charge balance, so that, for example, charge transferred to the surface via thunderstorms or tornadoes will be offset, sooner or later, by plasma streaming away from the Earth.

Second, there is no reason to suggest that the streaming plasma could not revert to glow mode or even arc mode on moving up past the surface of the Earth. This is plasma; almost any form could be taken. There are a number of instances of observers having seen brief beams of light emanating upward from attested genuine crop circles.

The crop circles are all about that, apparently, except that the True Believer observers think that something lowers to the ground from higher up -- thus you get claims of flying saucers and extraterrestrials. I think it is more likely that these phenomena moves up from below ground, since they keep occurring in nearly the same locations. The direction of travel, together with occasional observations of lighted spheroid shapes (even photographed at some crop circle locations), would suddenly account for various "UFO phenomena." UFOs almost always rise up, they are not seen to lower to Earth. [\[note 21\]](#)

Special thanks to R Houston for pointing out the plasma sources.
Special thanks to R Boerman for a discourse on crop circles.

Endnotes

Note 1 --

Leroy Ellenberger, "An Antidote to Velikovskian Delusions" in *Skeptic* (1995) or at <http://abob.libs.uga.edu/bobk/velstcol.html>. But the point of a valid criticism is entirely missed. All the Saturnian writers almost to a man have assumed without hesitation that the source data for the essay by Jastrow is applicable to the period before 3147 BC -- the "Era of the Gods" -- rather than entertaining the possibility of a very late period.

It is just insane to suggest that any people would keep such idiotically detailed records alive for 3000 years. As a matter of fact, almost all of the associated records which do not deal with planets are clearly contemporaneous economic records from the 8th and 7th century BC: the cloud cover in the morning, the prices of grain, dates, and lumber. And as soon as the Assyrians lose their control over the fortune-tellers and astrologers of Babylon (in 612 BC), the records cease. Almost all the Babylonian records date to after 650 BC.

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Note 2 --

Revelations is based entirely on contemporaneous astrological concepts of the first century AD. The letters to the seven churches, which open the text, are addressed to the seven planetary Gods. The sign of the beast, 666, represents the number of years needed for a change of the equinox of one decan -- ten degrees - - along the ecliptic. The number 666 is one of the measures for the precession of the equinox current after the second century AD (66.6 years for one degree; today this is 72 years). The "beast" refers to the bestiary of the zodiac.

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Note 3 --

The King James Bible quotation is awkwardly worded, "I will bring again the shadow of the degrees, which is gone down in the sun-dial of Uzziah, ten degrees backward." Ronald Knox has, "see how low the shadow has fallen, with sun-down, where the dial of Achaz [Uzziah] marks the hours! I will make it go ten hours back."

We are, at any rate, talking about a shadow which was longer than expected (it was a winter-time shadow). At a latitude of 31.68 degrees north, the Sun at the equinox assumes an angle of 58.34 degrees with the horizon (58.38 before 685

BC). After 685 BC, in 684 BC, the Sun culminates at 52.34 degrees on March 6th -- on the old day of the equinox.

The reciprocal of the tangent, **cos()/sin()**, measures the shadow on the ground as a fraction of a gnomon of unit height. Thus the shadow on March 6 (on the equivalent day of March 21), before 685 BC, was:

$$\mathbf{\cos(58.38) / \sin(58.38) = 0.615.}$$

On March 6, 684 BC, it was:

$$\mathbf{\cos(52.34) / \sin(52.34) = 0.771.}$$

The fractional difference in the shadow is:

$$\mathbf{(0.771 - 0.615) / 0.615 = 0.25,}$$

... representing a lengthening of the shadow by 1/4th of the original length.

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Note 4 --

Charles Raspil "Planetary observations of the T'ang" (*1994 International Velikovsky Symposium*). The base information is from Edward Schafer, *Pacing the Void, T'ang Approaches to the Stars* (1977). Raspil supplements it with information from European, Byzantine, and Islamic sources. Raspil writes:

"Probably because of his shock at finding so many incredible astronomical observations (for e.g., fixed stars that blink on and off, or disappear for awhile, or appear with horns or other appendages; or planets that give off ribbon or flag-like emanations), Schafer attributes to T'ang astronomers talents that suggest that their greater competence is as whimsical poets."

Raspil could not deduce a consistent pattern, except to suggest that many anomalies happened during "conjunctions." Kepler is quoted as an example of the thinking of medieval astronomers (astrologers) on conjunctions:

"experience shows that all sorts of meteors were seen when the planets were configured in aspects, whereas the air was undisturbed otherwise."

"Aspects" are the angles made by celestial objects to each other, measured across the 360 degree circle representing the dome of the stars. On March 18, AD 904, Venus was indeed very close to the Pleiades.

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Note 5 --

I should note that Velikovsky may have "Venus not added" wrong. In an address by Abraham Sachs at Brown University on March 15, 1965, Sachs noted:

"In 'Worlds in Collision', p. 161, Dr. Velikovsky says that Babylonian astronomy at one time had a four-planet system, with Venus missing. For this, he refers to a book written in 1915. Not being a cuneiformist, Dr. Velikovsky cannot inspect the original text referred to in his 1915 source. I have read the text and I can report that it is quite true that Venus is missing in the text-- but so are the other four planets. Dr. Velikovsky's 1915 source mistranslated the names of four fixed stars as planets."

A transcript is at <http://abob.libs.uga.edu/bobk/vsachs.html>.

Marinus van der Sluijs in "gods-and-planets.htm" at mythopedia.info [since removed] provides an extensive critique of the ready willingness with which the Saturnians (Talbot, Cardona, and Cochrane) assign the Gods of the Polar Configuration to various planets (as I have done as readily). He writes, about the Babylonian astronomy after 600 BC:

"The fact stands that the Babylonians often employed the same divine names for various planets. [And, it should be noted, also mixed them with the names of stars and constellations.] Why they did so is far from clear to us. It seems unlikely that the Babylonians of the first millennium BCE could not properly distinguish between the various planets. David Brown [see the text] argues that a name applied to more than one planet in the period he studies has nothing to do with confusion or unclarity on behalf of the Babylonians, but is indicative of a system whose rationale escapes us today."

"The 'logical problem' introduced with the realization that myth communicates with us through symbols, simply forbids us to take the mythical or folkloristic statement that the gods were planets literally. If we accept that a god was Mars or Saturn because the myth says so, we ignore the principle that myth speaks through symbols. What we ought to suggest,

acknowledging both the planetary association and the symbolical nature of myth, is that a certain visual prototype was symbolised by the myth-makers as the planet, because of certain similarities the planet had in common with the remembered prototype."

Myths are not "made." They are recollected history, and have no symbolic content, despite the three assertions by vd Sluijs in one paragraph. If Van der Sluijs conceives of myths and legends as "symbolism and displacement metaphors," I think he is making an enormous mistake for a self-proclaimed mythologist. I have been at pains to explain that the ancients were incapable of abstract metaphorical reasoning and symbolic notions in earlier times, and certainly did not "think" in the manner understood by us. Van der Sluijs's insistence on "symbol and metaphor" introduces an unwarranted and unneeded contemporary point of view when applied to concepts which have their sources in remote antiquity, although by the 8th and 7th century BC, the use of metaphors and symbolic reasoning was certainly in use.

By his own admission, van der Sluijs argues exclusively from the mythological point of view, not, as he states, from an interdisciplinary perspective (which would include the hard sciences), although he will readily admit that the legends and myths have their genesis in the visual effects of the polar display. Additionally he quotes extensively from older sources, none of which have considered earlier celestial catastrophes or the confused sky up to the seventh century BC as influencing the identification and naming of the planets.

In my point of view, the primary Gods to the ancients were real persons who could be seen in the sky -- as globes which today we call planets. Only after 1200 BC or so do they start to acquire spiritual qualities. To the Chaldean (Babylonian) prognosticators of the 7th century BC, the Gods had indeed become physical entities, which moved across the sky like so many chess pieces to determine the fate of nations and individuals, and had to be treated yet with respect, for the priests were in the employ of the pre-conscious Assyrians to whom the Gods were still very real personages. Contemporaneous with the Assyrians and Chaldeans, Homer treated the Gods in complete mockery.

Lastly, it has been noted that the names of the Egyptian Isis, Osiris, Horus, and Seth, the Greek Athena, Kronos, Aries, and Zeus, the Sumerian Inanna and An, the Canaan Ishtar, and Babylonian Marduk (and more) do rotate somewhat haphazardously among the planets Venus, Saturn, Jupiter, Mars, and Mercury. The correct identities are not always certain. The best test is to use the insight of

the Greeks during classic times, that is, if two Gods have similar histories and characteristics, they *are the same* even though they might be known by different names in different lands.

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Note 6 --

Mithra is also one of the Hindu pantheon, representing the shining Sun disk of daytime, and was also known among the Hittites of Anatolia in circa 1500 BC, as well as among the Zoroastrians. His popularization is likely due to the influence of Mazdaism at the time of the Persian Empire.

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Note 7 --

See David Ulansey *The Origins of the Mithraic Mysteries* (1989). Most of what we know about Mithraism is from the writings of the Church Fathers -- Jerome, Tertulian, and others, plus a number of Greek and Roman authors. Ulansey comes to the same conclusion as I do, that is, that Mithraism is in response to a change in the equinox. Ulansey bases his theory on the suggestion that a knowledge of the precession of the equinox came to light in the third or fourth century BC, despite the fact that the iconographic references of Mithraism are to Taurus and Scorpio as the constellations of the equinoxes. Using today's estimate for the precession of the equinox, and assuming that the precession of the equinox had always been the case for Earth, this would place this configuration in about 2000 BC. This is unlikely as a remembered condition, and cannot be related to any significant event. There are just too many intervening events and religious rethinkings to make sense of this.

Ulansey equates the stance and gesture of Mithra in sculptures to the depiction of Perseus after decapitating Medusa (the Gorgon), that is, looking away. He also draws parallels between the Gorgon and the frequent depiction of a lion-headed God entwined by a snake and standing on a globe representing the Earth, or, more likely, representing the globe of the stars as seen from a remote exterior. This apparently became a standard depiction in the Middle East and Greece. Globes of the stars at this time start to show both the equatorial and the ecliptic as encircling bands.

I could add to the confusion of associated imagery by noting that the Gorgon is Venus blazing in 685 BC with plasma streamers as hair, although Perseus is nowhere nearby (Perseus is above Taurus). Additionally, the image of the

Gorgon is much older than 685 BC. Medusa is one of the three sisters of the south of remote antiquity, dating to after 10,900 BC. She is the main ball plasmoid which could not be looked at -- but only because it was far too bright to endure. Peratt has suggested the brightness also, in noting that many petroglyphs were carved only where the artists would be shaded from the brightness of the ball plasmoids.

Ulansey's lion-headed God is the Sun in the constellation Leo on July 25th of 685 BC, when the plasmoid from Jupiter landed after midnight and the eastern sky blazed for nine hours. The entwining snake is (likely) the plasma plumes appearing at the north and south magnetic poles of Earth under the conditions of a radical change in the field of the Sun.

What confirmed for me the common core of this diverse and unfamiliar imagery was the depiction of the lion-headed God as item 312 in Maarten Vermaseren's *Corpus Inscriptionum et monumentorum religionis mithriacae* (1956), where the statue wears a plasmoid bolt on its chest, rather than the usual Gorgon head. This is also illustrated on page 33 of Ulansey's book.

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Note 8 --

Although I guessed at this, as I found out later, David Ulansey also agreed that the boys with the torches represent the vernal and autumnal equinox, and Ulansey also admits that the symbolism is at times reversed. I did not check to see if Ulansey considered the visual crossing of the ecliptic and the equatorial or the factual crossing.

The crossing of the equatorial and the ecliptic is also notable in Mesoamerican iconography. The same symbol is used, the Saint Andrew's cross, where one of the diagonal bars crosses the other, a different configuration for the spring and fall equinox. For the vernal equinox the bar starting at the upper left crosses in front of the other. The autumnal equinox reverses this. The visual representation in Mesoamerica is based on the shadow of the Earth falling on the last ring of the Absu, which lasted well into the current era.

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Note 9 --

The event of 685 BC had happened 80 years before Lao-tse was born. Reading "Tao" as the road, meaning the zodiac, and "Thien" as heaven, meaning the dome

of the stars, the text, although with obvious strong philosophical rather than scientific overtones, becomes immensely elucidated. See especially the introduction of James Legge in the *Sacred Books of the East, Volume 39* (1891) and the comments on translations by Kelley L. Ross at [\[www.friesian.com/taote.htm\]](http://www.friesian.com/taote.htm).

A typical interpretation of Taoism was made by Sze-mâ Khien, writing, in the first century BC, "Lão-dze [Lao-tse] cultivated the Tao and its attributes, the chief aim of his studies being how to keep himself concealed and remain unknown" (quoted by Legge). This represents seeking a high moral order by imitation of the still-standing and unknown quantity -- eventually identified as "Heaven" even by the Confucianists -- behind the dome of the stars which had made such a sweeping change in 685 BC.

Confucius, born in 551 BC, must have been aware of the change, even though it happened 100 years before his time. However, it is not mentioned in any of his writings. To us, the most important works of Confucius were his compilation of ancient records, his preservation of a thousand years of poetry, and his annotation of the *I Ching*. But to Confucius himself, his most important work was the compilation of a year-by-year political record of his home state of Lu, the *Spring and Autumn Annals*, covering the years 722 BC to 481 BC. He specifically noted the importance of the *Spring and Autumn Annals*, working on it until shortly before his death. This period was also a time of internecine struggles among the nearly independent states, and the Confucian Annals have given their name to this period of Chinese political history -- the "Spring and Autumn" period.

His students and followers knew how Confucius felt about the *Spring and Autumn Annals* and elevated the book to the status of one of the five Confucian Classics. Yet the contents lack any philosophical observations and the entries relate activities which are all too terse and mundane to be of any interest.

If Confucius was searching among historical data for the effect of the change in the zodiac, it does not show. An inspection of the *Spring and Autumn Annals* yields nothing of note during the years spanning 685 BC. Some 37 eclipses of the Sun are listed for the complete period, of which all except two were verified in the 19th century. Five floods are listed, four earthquakes, three comets, three lightning strikes, and many rains of excessive magnitude.

The *Spring and Autumn Annals*, and the commentary by Tso Kew-ming, the *Tso Chuen*, are instead totally absorbed with the human failings of the leaders --

issues of honor, insults, and reputations.

China at that time was an inland nation, with the coastal regions held by "barbarian" tribes. Thus China did not use the stars for navigation, as the Eastern Mediterranean did. Little attention was paid to the stars or the planets, which to the Chinese did not represent earlier Gods. For example, when a large comet appeared in 524 BC the recommendation by the priests and court historians to perform extra sacrifices to avoid disaster were ignored. An earlier solar eclipse in the same year was accompanied by similar recommendations and response (from the *Tso Chuen*).

Frances FitzGerald, in *Fire in the Lake* (1972), details the outlook of the people of Viet Nam in recent times as a conservative Confucianism with the deeply imbedded elements of the Tao. The politics and social order for the Viet Nam "way of life" -- what FitzGerald calls "state of mind" in her first chapter -- are essentially Chinese, 2000 years old, rational and pragmatic, and so astoundingly different from European and American thinking and outlook as to be virtually incomprehensible.

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Note 10 --

From the introduction to the *Zend-Avesta*, by James Darmesteter, in *Sacred Books of the East, Volume 4* (1880):

"The world, such as it is now, is twofold, being the work of two hostile beings, Ahura Mazda, the good principle, and Angra Mainyu, the evil principle; all that is good in the world comes from the former, all that is bad in it comes from the latter. The history of the world is the history of their conflict, how Angra Mainyu invaded the world of Ahura Mazda and marred it, and how he shall be expelled from it at last. Man is active in the conflict, his duty in it being laid before him in the law revealed by Ahura Mazda to Zarathustra. When the appointed time is come, a son of the lawgiver, still unborn, named Saoshyant, will appear, Angra Mainyu and hell will be destroyed, men will rise from the dead, and everlasting happiness will reign over the world."

The Persians only used open fires as altars. Fire altars were in use for sacrifices to the Gods since remote antiquity in China, Central Asia, and India. These are modeled on the "fire on a platform" seen in the sky after 4077 BC when Saturn went nova. In Western Asia, Eastern Europe, Mesopotamia, and Egypt the image

of Saturn in the sky is understood as a house instead, and temples are built as houses for the Gods.

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Note 11 --

The celebration of Dionysus formed the basis of Grecian theater. As is noted by Alfred de Grazia in *The Disastrous Love Affair of Moon and Mars* (1984), it consisted of the introduction of a folk art form into an unformed society of survivors of the destructions of the 8th and 7th century BC.

"The theory of causation seeks evidence of abrupt takeover of a destroyed culture by marginal survivors who cast aside, or employ ceremonially, practices they do not or cannot use or understand. Then they proceed to draw from every source their new synthetic culture."

"... when the Greek theater appeared [writes Giovanni Patroni], we find the rustic god Dionysus, with a goat-cult of dancers cloaked in skins. The poverty of the means, the few actors, the vagabond origins of the Thespian theater, all showed still, according to Patroni, that the primitive real Greek theater was not receiving the subsidies of princes, not the interest or participation of Mycenaean high society; it was left to the rural folk. ... In the general destruction of societies, the art of the survivors made its way quickly forward. The elite and its sophisticated art forms were destroyed; folk art (not primitive art) dominated the scene."

-- Alfred de Grazia

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Note 12 --

See Kelley L. Ross at [\[http://www.friesian.com/upan.htm\]](http://www.friesian.com/upan.htm). He continues with the following (describing the transfer of ideas some 700 to 900 years later):

"The undoubted transfer of ideas between Greece and India in the Hellenistic Period, and the export of Buddhism from India to China beginning in the Han Dynasty, provides us points of comparison with what, the uninfluenced traditions, came before."

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Note 13 --

For a development of Greek philosophical systems from about 500 BC to about AD 200, see the first half of Charles Freeman's book *The Closing of the Western Mind* (2005). Later chapters detail the rise of Christianity after Constantine, up through the time of Aquinas.

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Note 14 --

Livio Stecchini reports that a change to a differing dating system was initiated in Greece and Rome after 747 BC without reference to concurrent changes in Mesopotamia. See *The Velikovsky Affair* (1966).

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Note 15 --

"It [the Miletian school of philosophers] set about to explain these phenomena [lightning, earthquakes] in terms of the same elemental processes ... as it invoked to explain the orderly arrangement of the earth and the heavenly bodies. In so doing, it implied the baselessness of the traditional Olympian religion which attributed lightning and earthquakes to whims of Zeus and Poseidon and world-destructions to battles of the sky-gods."

-- William Mullen, "The Agenda of the Milesian School" *Natural Catastrophes during Bronze Age Civilisations*, SIS Conference, (1997).

Thales of Miletos (640 -- 546 BC) is traditionally held as the first Greek rationalist investigator, based on his total rejection of the role of the Gods in creation, and his conclusion that everything was made from water (attributed to Thales by Aristotle). We see this as the first primitive atomic science. But consider the fact that, with this statement, Thales is repeating the oldest creation myths, which hold that everything indeed was made from water.

The measurement of the year and the rationalization of the periods of the Moon is also attributed to Thales. Apocryphally, to Thales is attributed the advice to navigators to steer by Ursa Minor, rather than the traditional Ursa Major.

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Note 16 --

The circumference of Earth was found by Eratosthenes by measuring the length of a shadow in Alexandria at noon on the solstice, when it was known that, at the same date, the Sun was directly above Syene (Aswan). The distance between the two locations, at almost the same meridian, was known from Egyptian surveying records and probably accurate to within a few hundred feet. The most generous estimate of his estimate for the circumference, 252,000 "stadia," based on an appropriate selection of a "stadia" (there are three differing measures for "stadia"), is 24,662 miles, which is within 198 miles of being correct -- and despite the fact that Syene and Alexandria are not at the same meridian, and that Syene is not located exactly at 23.5 degrees north. See Justin Pollard and Howard Reid, *The Rise and Fall of Alexandria* (2006). This book is a wonderful compendium of ancient science and philosophy, covering 330 BC to AD 650.

Robert Crease, a historian of science, writes in *The Prism and the Pendulum* (2003) about Eratosthenes,

"Eratosthenes's picture of the cosmos [a model] was critical to the success of the experiment. Without this particular picture, measuring the shadow would not yield the earth's circumference. For example, an ancient Chinese cartographic text, the 'Book of the Masters of Huainan' [139 BC], notes that gnomons of the same height but at different (north-south) distances from one another cast shadows of different lengths at the same time. On the assumption that the earth is essentially flat, the author attributed this difference to the fact that the gnomon casting the narrower shadow is more directly under the sun, and argues that the difference in shadow length can be used to calculate the height of the sky."

This would have worked, but would not have resulted in a useful model, for the statements above are based on the concept of Earth as a flat plane.

The "picture of the cosmos" in Eratosthenes's time was derived from Aristotle: the Earth as a globe. It is one of the "narratized mental spaces" mentioned in the text, and it need not be a valid point-for-point representation of reality, as many models of physics will testify. Appropriate results from the exploration of this mental space are the only criterion for usefulness.

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Note 17 --

For elements of statistics and probability theory in the context of their historical development which parallels common attitudes toward chance, see Michael

Kaplan and Ellen Kaplan, *Chances Are* (2006).

The Greeks also developed the concept of the soul as a separate entity, which leaves the body on death and continues a life of its own. The concept was taken up by a number of writers and philosophers in Greece, first used in the sense of a transmigration of the soul. The idea of the existence of the "soul," unlike the idea of "free will," quickly spread to other cultures, introducing itself into the thinking of the Middle East and Alexandria, and was readily adopted by Christianity.

"Life after death" was not a common Greek concept in the period before the current era. A "land of the dead" was, however, interpolated into both the *Iliad* and the *Odyssey* after 500 BC, and achieved its modern definition with Plato after 400 BC.

The Romans did believe in the concept, and as a result developed a much higher social morality. It was also apparently already an accepted concept among the tribes north of the Alps (if we go by the medieval legends of the Celts).

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Note 18 --

Not that there are not some very strange things reported by BLT Research, especially with Robbert van den Broeke.

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Note 19 --

It could be suggested that adding a series of posts or megalithic stones would help in concentrating the incoming (or "outgoing") plasma to the same location, and hence the building of henges. But this contradicts my earlier supposition that the number and location of the posts or stones replicated the look of the plasma stream seen incoming from the sky overhead. Henges were mostly abandoned after 3000 BC.

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Note 20 --

I have seen suggestions of "plasma" on crop circle web pages, but they are often presented as some form of air disturbance and in terms of magneto-hydrodynamic fluid flows. See an article "The Physics of Crop Formations"

(1998), by John Burke, at [\[BLT\]](#), which suggests plasma discharges as the cause (although Burke has not much of a handle on the mechanics of either plasma or electricity) and traces the original suggestion to George Meaden's book *Circles from the Sky* (1991). Meaden is a meteorologist and physicist.

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Note 21 --

Robert Boerman, a Dutch author, wrote to me in an email in 2008:

"I have studied the crop circle phenomenon for 11 years from 1997. I visited, researched, photographed, measured and studied almost every single Dutch crop circle from 2000 to 2006, wrote two books about it, and now, after all those years of research, I don't know it anymore. The phenomenon is too complicated. What I found out is that there is a link between plasma (balls of light?) and crop circles. And I think that some of the crop circles are formed by nature itself, some by human mind, some definitely by hoaxers."

Boerman was the first to make me aware that he and other people were considering crop circles as a plasma phenomenon. See his website at <http://www.dcca.nl/index.html>.

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*Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()
units: million == 1,000,000; billion == 1,000,000,000;
AU == 93,000,000 miles.*



Chapter 27: Sibylline Star Wars.

\$Revision: 42.1 \$ (sib.php)

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The Sibylline Star Wars

The information below bears on the blazing of Venus and Mercury in 685 BC, the relocation of the polar axis, and the change in the location of the equinox. It is from a document written 800 years later, but clearly from extant sources. It is probably also the most spectacular confirmation of the reality of the events of 685 BC.

Franz Xavier Kugler, an early 20th century translator of Babylonian cuneiform astronomical tablets, in a book titled *The Sibylline Battle of the Stars and Phaethon Seen as Natural History* (1927), analyzed the ending of the fifth volume of the Sibylline Oracle Books, originally completed (it is today estimated) in about AD 115 in Egypt. He suggests that the text deals in specifics, of a yet-to-come event, for which details were garnered from older records, although in his opinion the details date from 1500 BC. In my opinion the details date from 685 BC.

The *Sibylline Oracle* books were written in Greek in lower Egypt between 100 BC and AD 200. They are mostly Jewish in sentiment and philosophy, as they are in politics. Using an established style for prophecies, as in the Delphic oracles and in the writings of the prophets of Israel, "Babylon" is substituted for Imperial Rome, while "Rome" might be a substitute for the real name of an Emperor. This makes interpretation difficult at times. The Books were still in circulation in the 16th century as manuscripts. German and English translations (from the original Greek) appeared late in the 19th century.

Livio Stecchini, in "Cuneiform Astronomical Records and Celestial Instabilities" in *The Velikovsky Affair* (1966), reiterates Kugler's idea that the

Sibylline prophecies were based on extant data from antiquity. He also notes that the scientific philosophies which had developed by this time (100 BC to AD 100), required specifics in prophecies. There are additional comments by Malcolm Lowery in the article "Father Kugler's Falling Star" in *Kronos* (1977), and by Bob Kobres in "The Path of a Comet and Phaethon's Ride" in *The World & I* Volume 10, No. 2 (1995). Stecchini writes, about Kugler:

"Kugler wanted to indicate that the writers of the oracle were so preoccupied with solid astronomical facts that they described the successive phases of the episode of Phaethon according to what they knew about the position of the heavenly bodies in the several months of the year. It is his contention that the writers of this oracle, far from being maniacs breathing gibberish, were trying to make their prediction (based on a past historical occurrence) credible by framing it in an accurate astronomical timetable."

Stecchini then continues to promote his own viewpoint:

"This group of philosophers was fathering modern uniformitarianism, because they were fitting the historical tradition of 'catastrophes' into a cyclical pattern of phenomena recurring at fixed intervals of time, past and future, according to an absolutely unchangeable and predictable order of the heavenly cosmos."

That is so modern to say. The "unchangeable and predictable order" is totally missing. Just read the poem once and you will be convinced. I also disagree with the date of 1500 BC, as if some celestial disruption happened at that time, for it is doubtful if such detailed data was recorded that far back, or that it would have survived as astronomical data, when the social milieu of that remote time still held fast to attributing all such events to the Gods. And I do not think we could hope for a clear calendrical record if the land had been devastated repeatedly and the skies were obscured for years. Much more likely the specific data records the blazing of Venus in 685 BC. By 685 BC, Babylonian astronomical records had appeared and observation of the heavens was well established.

The Great Year

I should first note a related numismatic oddity among the coins of the Roman Imperial period. This involves the reverse side depiction of an upfacing crescent with seven stars above. These occur in the reigns of the Roman emperors

Hadrian (reigned AD 117 to AD 138), Commodus, reigned to AD 192, and the Severan dynasty (AD 193 to AD 235) with dates late in the second century AD and early third century. These coins thus coincide or closely follow the writing of the Sibylline Star Wars text. [\[note 1\]](#)

I looked at hundreds of coins from the Roman Imperial era. All the coins depict a head (generally the emperor) in profile and the scene of a full-sized figure on the reverse -- at times mythological, at times as allegorical personifications (Victory, Africa), at times a temple structure or sacrificial devices. One even shows the double-ended triple-tined thunderbolt of the Eastern Mediterranean on the side of a cart drawn by four horses. There are also infrequent depictions of a star within an upturned crescent. In one case this is sitting directly above a pillar of sorts.

There are also some Partian coins with the crescent and seven stars of the same dates. And then, after the third century AD, it fades, except for occasional uses into the current era. In antiquity Isis, holding baby Horus, is shown standing on the crescent with seven stars surrounding her head, as Mary holding baby Jesus is today.



[Image: Roman coin of the Imperial era after Hadrian.]

Curtis L Clay, posting at <http://www.forumancientcoins.com/board>, in November, 2005, writes, with respect to Roman coins with a "crescent and seven stars" design on the reverse:

Strack, noting that the same type is labeled SAECVLI FELICITAS, "The Happiness of the Age", on Eastern denarii of Septimius Severus [reigned AD 192 to AD 211], interprets Hadrian's type as indicating the return of the seven movable heavenly bodies to their original positions, signaling the beginning of a new golden age.

He cites: (1) Festus: "The mathematicians call it the Great Year when the seven wandering stars complete their individual courses and return to harmony with each other", and (2) Servius [4th century Roman grammarian] on Virgil's Eclogues: "At the completion of the Great Year all of the stars return to their places and begin the next cycle of identical movements. If the movements of the stars are repeated, it follows that everything that happened will recur again, since it is obvious that everything is determined by the motions of the stars. For this reason Virgil says that the Golden Age will return and everything that happened before will be repeated."

I cannot find the related text in Virgil. Clay continues with:

On this interpretation, we have to assume that the moon is depicted twice in the type: it is represented not only by the crescent, but also by one of the seven stars above the crescent, since it is one of the seven wandering heavenly bodies, but is also by far the most prominent of them at night, and the only one that waxes and wanes.

But I suspect that the Moon is *not* depicted twice. The upturned crescent has nothing to do with the Moon. Although the seven stars are grouped in various ways to reflect graphic convenience and representative shorthand, the crescent is always shown as upturned -- a condition which the Moon never achieves, except in the tropics.

The crescent is the backlighted portion of Saturn, last seen in 3147 BC. It has no significance for 2349 BC or 1492 BC, or for June and July of 685 BC, except to signify the endpoint or the start of creation -- the destruction of the heavens. The grouping together of all the planets was still remembered or understood as significant from before 3147 BC, although during the "Era of the Gods" the seven objects grouped together were probably the satellites of Saturn. In the third century AD these were the seven planet. The crescent below the stars is part of the standard depiction, and has nothing to do with the Moon.

This idea of "grouping together" and the start of a new epoch was reinforced at the beginning of the calendar year following the nova event of 685 BC. In spring of 684 BC, on the day of the equinox, all seven planets presented themselves in the eastern sky just before sunrise.

On March 8th, Gregorian (the equinox in the previous era), the planets extending from the east horizon were: the Sun (before rising), Saturn, the new

crescent Moon, Mercury, and Jupiter and Venus (almost conjunct), then a large gap and Mars over the southwest. The first six were all grouped in two houses, Pisces and Aquarius. Geometrically the center of the distance between the Sun (at the far east) and Mars (at the west end) is located in the constellation Capricorn.

Berossus

Berossus, a priest from Babylon who moved to Greece after 300 BC, had noted that planets in Capricorn of the Great Year is associated with a deluge, and when these appeared in Cancer the catastrophe would be fire.

In the previous year -- the year of the nova event of 685 BC -- early in June (June 15, Gregorian) the planets Venus, Mercury, plus the Moon, Sun, and Mars straddled the constellation Cancer (all within 45 degrees). This was the starting day of the blazing of Venus and Mercury. This may be the reference to Cancer which Berossus had in mind. Jupiter and Saturn were nowhere near, however.



[Image: The sky on March 15, 684 BC, Julian, the signs in the sky of the first "Great Year" after the plasmoid of 685 BC. From SkyGlobe 3.6.]

I should note that March 8, Gregorian (March 15th, Julian), is the "old date" of the vernal equinox, which had moved to March 21 in 684 BC, as I have shown elsewhere. This was the first instance of the new date of the spring equinox (although using the old calendar date). The conjunction was also not a unique event. By the end of the same year another conjunction showed up on December

15th: the Moon, Saturn, Jupiter, Mars, Venus, Mercury (these two both in Capricorn) and the setting Sun.

The initial conjunction includes all the elements of the "Great Year" from antiquity: a long interval between catastrophic destructions of the world (or so it was assumed), the grouping together of all the planets so that they will restart their orbits, the first day (the equinox) of the first year in the new era (at the conclusion of the previous era when Phaethon was bolted by Zeus), and, lastly, the identification of the start of the Great Year with the constellation Capricorn.

van der Sluijs

Marinus van der Sluijs, in "A Possible Babylonian Precursor to the Theory of Ecpyrosis," *Culture and Cosmos* (2005), in an analysis of a Babylonian text *Erra and Isum*, suggests a precursor to the concept of a Great Year as shown in the poem's dialog between Marduk (Jupiter) and Erra (Mars). Mars has usurped Marduk's power but relents after being warned how the world will end with fire if he persists. It does, of course, nearly end with fire, although in 685 BC Marduk (as Jupiter) takes control again.

The narrative compares the "water catastrophe" of Marduk with the "fire catastrophe" of Erra -- as if these two directly followed each other. They did not, of course, as we know. The fall of the Absu in 2349 BC would be the "water catastrophe," but the Exodus event intervened.

The crucial details of a common element allowing for the comparison, and the reason for selecting the 2349 BC "fall of the Absu" event rather than Exodus, is that in both instances, 2349 BC and 685 BC, Jupiter (Marduk) is involved in an identical gesture -- he gets up from his seat, then sits down again. The moment he rises, creation starts to come undone.

"Getting up from his throne," in the *Erra and Isum* narrative is an up-country version of the same incident recorded in the Babylonian *Enuma Elish*: the disappearance and reappearance of Marduk's garment. In both cases -- in the *Enuma Elish* and in *Erra and Isum* -- this was the disappearance of the lower mountain-shaped plasma expulsion of Jupiter. In these two instances, in 2349 BC and 685 BC, as I have detailed already, there was the sudden reappearance of the lower coma expulsion or "throne" of Jupiter after the catastrophe -- as if to suggest that the act of reseating Jupiter stabilized creation. The sequence in both

cases is extensive because the time lag between unseating and reseating is measured in decades or centuries, but a causality was affirmed.

This is among the details brought forward by vd Sluijs, although without reference to actual events and dates, which he is unaware of. We possess only portions of the narrative, and thus we do not know how the conflict between Jupiter and Mars was resolved, although we could guess. The *Erra and Isum* text is thought to be dated to the period of 1200 BC to 600 BC. Because of the revolt by Mars and the warning of devastation to come, I would opt for a creation date for the document after 650 BC.

What we have here is an example of myth creation (narratization) for two historic events which identify the agents involved. We know both the events and the protagonists, having met them already in the text I have so far presented. Most interesting is that the author is willing to tie together events 1500 years apart with the single gesture of the reseating of Jupiter. The reseating we know of already also. The number of years between these events is certainly much longer than the 684-year span of the Great Year as suggested directly below.

Clube and Napier

Even in antiquity (as we know from texts in the first century AD), the length of the Great Year was in question. Why this was so will soon become clear. There are some obvious values for the span of time of a Great Year which could be calculated. Some are patently obvious.

Victor Clube and Bill Napier, in *The Cosmic Serpent* (1982), use a Great Year of 684 years. It is a value based on B.L. van der Waerden's *Science awakening II: the birth of astronomy* (1974). Van der Waerden found this as a frequently encountered number in ancient Babylonian sources. Clube and Napier go to some rather extensive numerological contortions to pick up a time span of 684 years. They use the date of the second Earth shock (686 BC) identified as due to Mars by Velikovsky, along with a made-up date for the Exodus, 1369 BC, to fit the time span of 684 years (counted inclusively), and use it to suggest that the next catastrophe would be in 2 BC.

This is based on the fiction of a new date for Exodus, which, however, is not needed. The span between the more generally accepted date of 1492 BC for the Exodus, and the first "attack" by Mars in 806 BC (which Clube and Napier were

not aware of), spans 686 years -- close enough to van der Waerden's (and the Babylonian) value of 684.

What is interesting, of course, is that the Babylonians were attempting to impose some order to the planets in the sky. The dreadful 120 years of assaults by Mars were real, and were remembered. So were the 684 quiet years which preceded that period. The date of 2 BC might have been viable for a long time as forewarning of another catastrophe, but apparently nothing happened.

I looked for 7-planet conjunctions between 7 BC and AD 1 (Julian astronomical dates, thus to AD 4), checking month to month during the time of a new Moon. These conjunctions are not uncommon. A list of the five found during this 8-year period is shown in the endnotes. [\[note 2\]](#)

I should note that likely the Babylonian astrologers did not use Clube and Napier's math to obtain the number 684. But, assuming "684" was indeed known and was correct, then adding 684 years to 806 BC (the first time Mars devastated the Middle East) will result in scheduling the next catastrophe for the year 122 BC -- when also nothing happened. But adding 684 years to 685 BC makes the next event fall in 1 BC. The dates are astronomical, so that 1 BC represents AD 4 in Eastern Mediterranean chronology. Either date will do.

Hadrian

Meanwhile, conjunctions just kept on coming, without any apparent catastrophic effects. I checked, but no conjunction happened anywhere near the death of Julius Caesar, despite his deification in response to a sighted comet. I also started to check for the time period of the emperor Hadrian from the year AD 100 on. Conjunctions of all the planets spread across the sky happen on the following Julian dates (I may have missed some).

- AD 107, Sep 19, Moon (rising), Sat, Mar, Mer, Ven, Jup, Sun (setting)
- AD 109, Oct 27, Moon (rising), Mar, Sat, Ven, Jup, Mer, Sun (setting)
- AD 115, Jun 5, Sun (rising), Jupiter, Venus, Mercury, Saturn, Mars, Moon.



[Image: The sky on June 5, AD 115, Julian
(AD 119 in Eastern Mediterranean chronology). From SkyGlobe 3.6.]

The last of these (AD 115) corresponds to AD 119 in Eastern Mediterranean chronology. Hadrian became emperor in AD 117, two years before this conjunction. The first coinage of the crescent and seven stars occurs in AD 119 or 120, although I have not been able to verify this from other sources. Hadrian was in Britain at this time, busy with Hadrian's Wall.

I would suggest that the frequent conjunctions were worked into the propaganda of political discourse. The Romans were acutely aware of astrology, and nothing would have been missed. Additionally, the future locations of the planets in the sky could at this time be accurately calculated in advance. [\[note 3\]](#)

"There was an obsession with astrology," writes Tom Buggey, "during the reign of Septimius Severus and successors, the reliance on astrology became a mania." (At <http://tjbuggey.ancients.info>.) Buggey means the Severan Dynasty, AD 193 to AD 235, which followed directly after the emperor Hadrian.

In AD 126 Hadrian completed the building of the Pantheon in Rome -- the temple to all the Gods, all seven -- an absolutely magnificent and sturdy building, which still stands today. On June 30 of astronomical year AD 122 (which is AD 126), there was a clear conjunction (another "Great Year" lineup) with Jupiter in Sagittarius in the southeast, Mars and the new Moon in Libra, and Venus, Saturn, and Mercury in Leo, with the Sun setting in the northwest. All the Gods stood in the sky. Perhaps dedicating the Pantheon at this time had prevented the end of the world.

Stecchini

It thus seems likely that the prophesies of the *Sibylline Books* accomplish what Livio Stecchini proposes, that is, to present a "cyclical pattern of phenomena recurring at fixed intervals of time," even though Stecchini offers no indication of the measure of the repeating cycle. Stecchini wrote, paraphrasing Kugler:

"It appeared in the east sky more brilliant than the Sun,"

He writes, additionally:

"The lines purport to describe the circumstances of the coming end of the world; they were written in the century before the birth of Christ [but collated with other texts in the second century AD] by Greek-speaking inhabitants of Egypt, when the ancient world was agitated by the Messianic expectation of a cosmic upheaval. But the lines give an account that is so exact and technical that it must be something more than a mere mystical vision of coming destruction. Such precise astronomical details are given that, calculating by the position of the constellations around 100 B.C., the crisis began in September and reached a climax in seven months ... after the 7th or the 8th of April."

"... According to Kugler, the crisis described as the Battle of the Stars began with the appearance in the eastern sky of a body as bright as the sun and similar in apparent diameter to the sun and the moon. The light of the sun was replaced by long streams of flame crossing each other."

"After the mention of these streams of flame that replaced the sun as a source of light, there follows the line, 'the Morning Star fought the battle riding on the back of Leo.'"

Stecchini explains, after Kugler, that "Venus [the Morning Star] riding on a lion" was a well known and "feared emblem for disaster" in the Eastern Mediterranean region, and gives examples of unconnected goddesses all depicted as riding on lions. I would point out, of course, that the "emblem" was well known because it had been experienced in 685 BC. Phaethon appeared not in remote antiquity, but in 685 BC. And the "Morning Star" was not Venus, but Mercury.

In the Star Wars description we again find Jupiter (Zeus) coming to deliver a mortal thunderbolt, as in the "legendary" event of Phaethon. Although in our current concepts of the solar system the honor of being the Morning Star goes to

Venus, in 685 BC, and since the prior year already (and perhaps also from an earlier time) Mercury was the Morning Star.

There is no question that the Phaethon legend describes the nova event of Venus and Mercury in June and July of 685 BC, although the Roman author Ovid (before AD 17), who narratized the "legend," places all the action in the span of one day rather than 40 days. Some descriptive details stand out. Ovid notes that large regions of the Earth were burned up with "*Ignis Coelis*" (fire falling from the sky), that Phaethon had to struggle against "the whirling poles" (which may have been a reference to a polar plasma plume) and was swept away by the "swift axis" (the polar axis?), that the normal path of the Sun through the skies was not followed, that the northern constellations attempted to dip into the sea (as the equatorial moved), and ends with the note that the Earth "sank back a little lower than her wonted place" (as paraphrased by Velikovsky).

Plato (circa 300 BC) quotes Solon to the effect that Phaethon's ride ended when he was hit with a thunderbolt delivered by Jupiter. Hesiod (circa 650 BC) mentions the birth of Phaethon to Eos (Dawn) and his abduction by Aphrodite (Venus). Phaethon is Mercury. Aphrodite here is the planet Venus, not the Moon.

A year earlier Mercury had been involved in a plasmasphere contact with Earth which reduced its orbit to fall entirely within the orbit of Venus. With this in mind, his "birth" as a Morningstar -- "the child of Dawn" -- plus his spectacular "abduction" by Venus will start to make sense.

Mercury's abduction is the near conjunction of Venus and Mercury on June 15th of 685 BC. It was seen as an abduction (also understood as a birth) because Mercury had previously only been seen just above the horizon before sunrise or after sunset (after sunset in June of 685 BC). It would not have been seen as traveling across the sky with the Sun, except that on June 15th, while very near each other in the sky, both Venus and Mercury started to blaze like suns during the day.

The two planets looked like comets, with shafts of light streaking across the sky -- directed both toward the sun and away from it, and likely at right angles as well. This is what comets do under the electric stress of approaching the Sun. Later astronomers, inspecting ancient records, came to the obvious conclusion that comets are generated when planets meet in conjunction. This opinion was held from Roman times through the Middle Ages.

A Starting Date

My estimate, made before I ran across the text by Stecchini, was also of an initial appearance in the east and a course of 8 months. Originally I selected a period starting at the earliest in March/April and lasting to January of the following year (rather than Kugler's September to April of 100 BC). At the first writing of this text I had no idea at all of when Venus would first have started to blaze, and used the first date of its appearance in the east, going by ephemeris information. Only in early 2008 did I manage to derive a reasonable set of dates for the event, based on diverse records. At this time I would hold that the blazing of Venus started on June 15, Gregorian, and ended on July 25th Gregorian (June 22 to August 1, Julian). The general details of these two dates were presented in a previous chapter. (Fine detail is presented in the chapter "The Chilam Balam Books.") Finding these dates simplified a reading of the *Sibylline Oracle* texts, which I will address below.

What is of greater interest are the specifics of the prophecies, not the dates. I disagree with Stecchini's evaluation (after Kugler) that the information "is so exact and technical that it must be something more than a mere mystical vision." I should explain that Kugler sees the progression of the Sibylline description as simply recording the path of the Sun through the constellations between September and April, and that this becomes the basis for the Phaethon event of circa 1500 BC by inference (which was actually the Typhon event, and points up how little is really known of the Exodus).

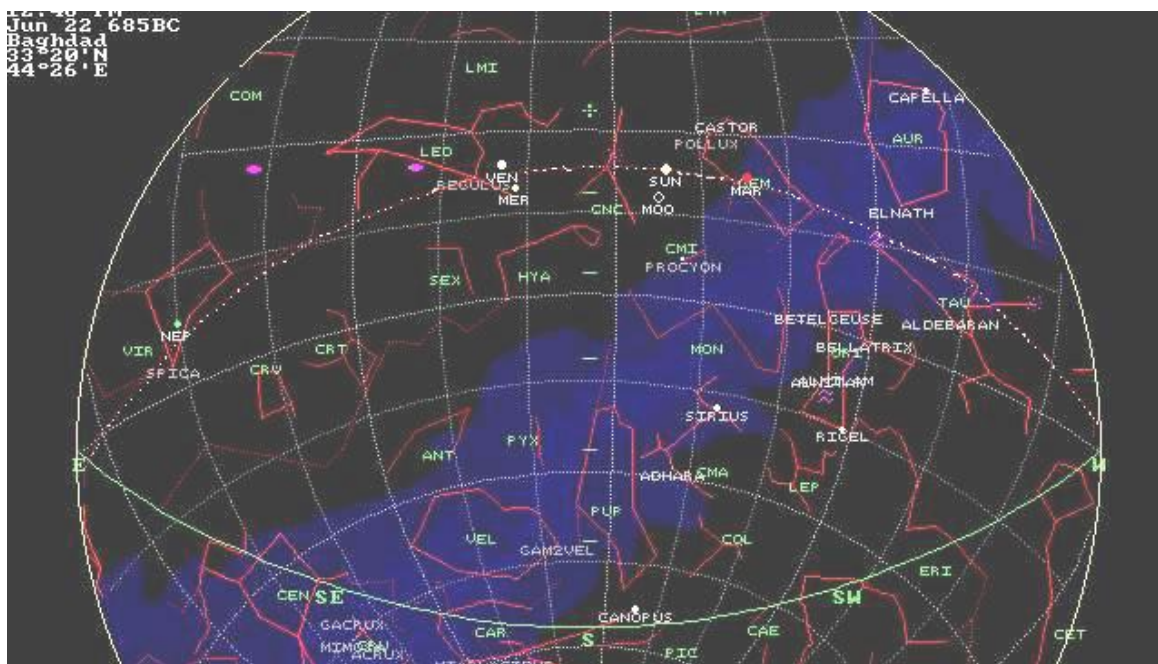
What I see, instead of a play-by-play, is an opening and closing statement which encloses a long list of damages in terms of relocations of the constellations, which range over all except a few of the zodiacal constellations. The effect is not unlike the trail of constellated animals which follow the depiction of the killing of the bull (Taurus) in the temples of Mithra, or the list of celestial damages presented in the play *Thyistes* by Seneca. Both of these are contemporaneous with the Sibylline prophecies.

There is an opening statement: the account of the visionary, how the star-war progressed (at which point dates come into use), what the main weapon was, and a summary of the lasting damages. At the end of the text we find a resolution and a windup signifying the end of creation. Enclosed by these is a long list of alterations in the constellations of the zodiac (and some others), which are neither complete, nor make all that much sense except when the new skies are compared with the old skies -- the dome of the stars before and after 685 BC.

But I suspect that the list was not meant to be complete; the main purpose was to suggest the utter derangement and confusion of the stars resulting from the battle.

For Kugler to have used 100 BC is reasonable, since in 1927 it was the best guess for a date for the Fifth Book, and since Kugler only sees an association with the normal path of the Sun. I will not pursue this. I am more interested in obtaining data for the actual event of 685 BC. I will thus shift attention to an ephemeris for the year 685 BC. The location of the planets and the constellations with respect to each other remains the same before and after 685 BC, but the polar axis and the equatorial both shift. The constellations all appear in the skies in the wrong places, that is, in the wrong locations with respect to the horizon and the zenith of the earlier ephemeris. Additionally, the starting date of the year (the vernal equinox) after 685 BC had shifted 15 days into the future.

The Opening Text



[Image: The sky on June 15, 685 BC, Gregorian. Looking south, at noon, a day of the new Moon. Venus and Mercury are in Leo, to the east of the Sun and Moon, which are in Cancer. (Not corrected for the change in the Earth's axis.) From SkyGlobe 3.6.]

The text in question, representing the closing lines 688 through 711 of Book Five of the *Sibylline Oracles*, is from a translation by Milton S. Terry in 1899. The text starts with: [\[note 4\]](#)

*"I saw the threatening of the shining Sun
Among the stars,"*

*"and in the lightning flash
The dire wrath of the Moon; the stars travailed
With battle; and God gave them up to light."*

It is the Sun which is threatened by another body or bodies. The "travail of the stars" involves the relocation of the constellations of the zodiac after the battle is done. This becomes fact only after the 40-day battle is completed. More on this below.

"I saw ... in the lightning flash, the dire wrath of the Moon." The author here jumps to the climax of the event, the delivery of the plasmoid lightning bolt of Jupiter on July 25th. Before July 25th (Gregorian), Europe and Asia had seen the bolt approaching from Jupiter for days. The bolt had passed directly by Earth on the day side, but only Mesoamerica had witnessed it at full size. On the 25th of July (August 1, Julian) the bolt was seen approaching Venus and the Sun.

As night fell, and Europe turned away from the path of the plasmoid in the day sky, nothing was seen except the Moon standing in the south, in its first quarter, probably after 9pm in the evening (it set at 1:30am). With the plasmoid traveling at an estimated speed of 40 million miles per day (64 million km per day) it would have reached the Sun in a half day after it disappeared from view to Europe. That is when the plasmoid hit the Sun. It would have been 3am.

The Sun rose the next day at 5am, engulfed in a cloud of plasma (to last an additional 7 hours as the 15-million-mile (24-million-km) long plasmoid crashed into the Sun), which also occluded Mercury, Mars, and perhaps Venus. Venus rose late, but may have lost its coma already, in which case it was not likely to have been seen.

I have previously proposed that the plasmoid would have had a diameter of perhaps 1.5 million miles (2.4 million km). That is twice the diameter of the Sun. The plasmoid would have engulfed the Sun. At an estimated length of 15 million miles, the flash of the first contact might have lasted 9 hours. The *Popol*

Vuh suggests that additional smaller plasmoid bolts continued to arrive from Jupiter for four days.

It must have been seen all around the horizon, and the Moon, rising the next day in the east after 3pm, while the Sun was still engulfed in plasma, would have lit up spectacularly. This describes the concluding event.



[Image: The sky on July 25, 685 BC, Gregorian (August 1, Julian), the concluding day of the blazing. The Sun is in Leo, Venus is in Virgo. From SkyGlobe 3.6.]

"God gave them up to light" obviously is meant to poetically tell that the battle happened during the daytime, which agrees with ephemeris information, or that a lot of light was produced. The narrator now drops back to the beginning of the battle.

*"For long fire-flames rebelled against the Sun;
Lucifer treading upon Leo's back
Began the fight; and the Moon's double horn
Changed its shape;"*

The starting position is now indicated as defined by the text, "Lucifer treading upon Leo's back." This was "Venus riding on a lion," the well known and "feared emblem for disaster" in the Eastern Mediterranean region, as per Kugler. On June 15 (June 22, Julian), Venus and Mercury are in Leo, to the east of the Sun and Moon, which are in Cancer.

The "long fire-flames" are the plasma tails of Venus and Mercury. Not unlike some comets, there may have been multiple tails which crossed each other (appropriate for Venus which does not have a magnetic field to coerce its plasmasphere tail into a cohesive bundle). The "long fire-flames" also might have extended both away from the Sun and toward the Sun, as well as at right angles to these. This has been seen for comets. [\[note 5\]](#)

Before and after sunrise the "flames" would reach up from below the horizon. Stecchini writes of the plasma plumes as "long streams of flame crossing each other" (quoted from Kugler). Rising up from the horizon where the Sun has set, these are the pointed sticks planted in the ground by Kirkin (Venus). Jupiter (Wyju) jumps into the same section of the horizon about 6 hours later with both feet.

Almost at once after mid-June, Mercury starts to move toward the position of the Sun, and passes it by July 3 (July 10, Julian). At that point Mercury, also ablaze, might have sent streams of plasma directed at Earth, for being in front of the Sun, its plasma tail would have pointed at Earth.

The coma, the plasma expulsions, and the distorted view of the plasma tail of Mercury when it extended toward Earth (easily confused with the Sun which Mercury was close to), are described by Isaiah and Ezekiel, and for Venus by Assurbanipal, the king of Assyria.

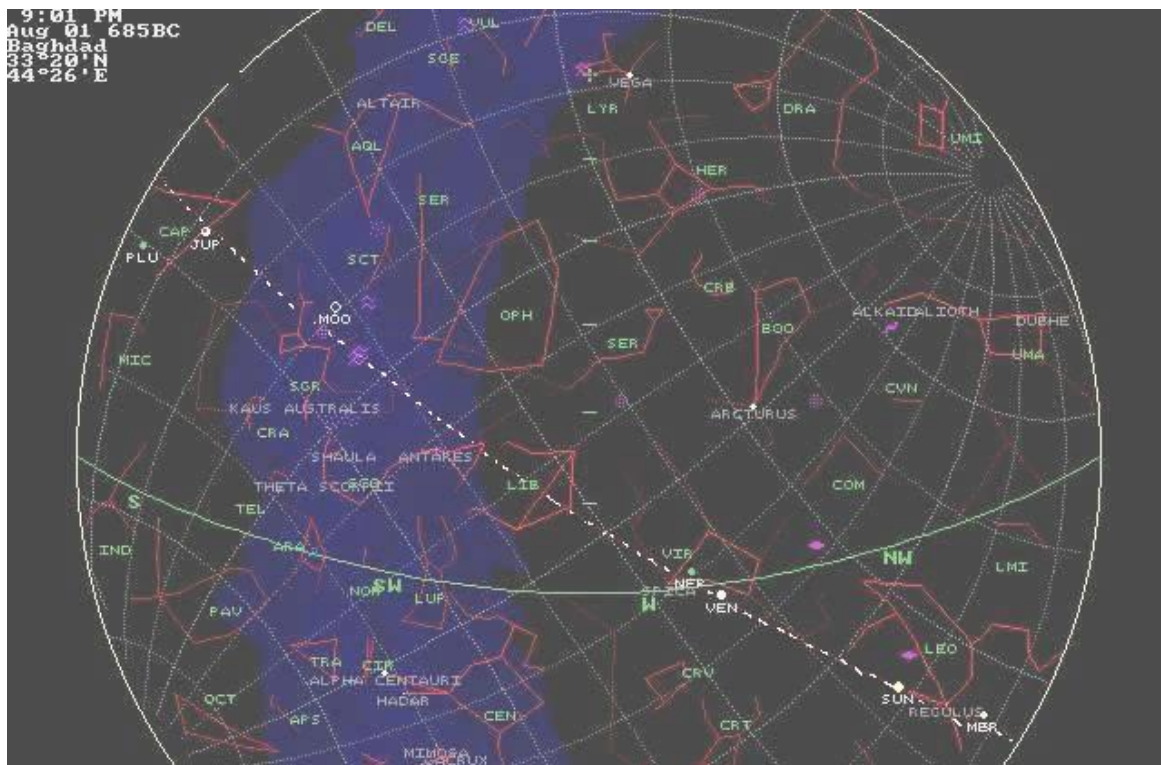
I would also suggest, in fact, that if the two inner planets were in flames and Jupiter reacted similarly a half month later, then certainly the Earth also would have been subject to such a condition. Plasma expulsions from the Earth may have been seen moving up into space. In a previous endnote I wrote:

"... the Earth also would have ended up erupting, but because of the Earth's magnetosphere and enclosing atmosphere, the Earth might have been spared the creation of thousands of electric burn craters, as on Venus and especially Mercury. There is the contemporaneous statement by Assurbanipal, king of Assyria, about Ishtar (Venus) 'raining fire over

Arabia.' Later Roman writers make the same claim of the Earth burning up because of the close approach of Phaethon, as does Plato."

The Moon (at night after June 15) would be lighted by the Sun, and the bright Venus and Mercury, so that its crescents ("horns") would be misshapen from its normal form. The Moon would normally have had sharp waxing horns after June 15. Now, with the additional light of Venus and its extended light, the horns might have reached further around the edges of the Moon, or the opposite edge of the Moon might have been lighted with a crescent, "the Moon's double horn changed its shape."

During the days of the late summer, with the steep gradient of the zodiac, the plumes would point down at the horizon, since Venus would be below the Sun most of the day. Only late in the day would the flame become horizontal. After nightfall a stream would come up from below the western horizon at a 45-degree angle, lighting up a large portion of the night sky.



[Image: The sky on July 25, 685 BC, Gregorian (August 1, Julian), the concluding day of the blazing, after about 9pm. The Sun and Venus have set. Sun in Leo, Venus in Virgo. Not shown is the plasmoid just below the western horizon. From SkyGlobe 3.6.]

The image above is for 9pm of July 25 (Gregorian). It is the early night sky of the concluding event, as seen from the region of the Eastern Mediterranean. Jupiter's plasmoid lightning bolt is headed for the western horizon. In the diagram above the plasmoid travels along the circle of the ecliptic. As Europe turned toward the night, the bolt was seen approaching Venus -- thought by some to be the errant Phaethon -- to strike him down. In actuality the bolt passed by Venus and struck the Sun, but the contact was not seen. The flash of the plasmoid landed at the Sun at about 3am. The morning would see the Sun, Mercury, and Mars all engulfed in a haze. The *Popol Vuh* claims the turmoil lasted four days.

It is quite possible that the people of the Eastern Mediterranean got it right, and knew the thunderbolt struck Mercury, who was primarily identified as Phaethon. But an error remains, for the target was the Sun, not Mercury, which was within 11 degrees of the Sun. By next morning Venus and Mercury must have quieted down, although the skies remained obscured for days. [\[note 6\]](#)

Mesoamerica did not see the massive explosion at the Sun either, because it happened a few hours after sunset. It was assumed that the bolt was destined for Mars, standing just to the right (west) of the Sun (about 30 degrees). The explosion at the Sun would have visually engulfed the location of Mars in the sky, as well as Mercury. The next day the Sun was still in place, so it was assumed (at least by some of the many literate people of Veracruz and the Valley of Mexico) that Mars had been hit. Mars did not again come close to Earth, but primarily because the orbit of the Earth became nearly circular (as noted by Rose and Vaughan) before the time that Mars might have returned again. (Assigned to 670 BC, in Eastern Mediterranean chronology.)

The Maya *Book of the Chilam Balam* states that the Sun left its normal path for three Uinal months of twenty days. This is counted inclusively, however. The actual period would be 40 days -- June 15th to July 25th, Gregorian. The *Chilam Balam* also places the arrival of the lightning bolt from Jupiter, which ended the affair, exactly on July 25, 685 BC (Gregorian), which may also be calculated (from the same text) from the last close pass of Mars 520 days earlier.

From the *Sibylline Oracle* it might be suggested that the end of the drama happened with the Sun and Venus both in Capricorn, which would have been January of the next year. The *Sibylline Oracle* reads:

*"Capricorn smote Taurus's neck;
And Taurus took away from Capricorn*

Returning day."

But this might also simply suggest the most obvious aspect of the list of changes which will have been wrought with the war -- the change in the equinox. Jupiter was in Capricorn when the plasmoid was released. So it was Capricorn (in the typically displaced wording of prophecies) that "smote Taurus's neck." The phrase "returning day" is the fact that Taurus has been shifted to below the horizon at the vernal equinox with the change of the zodiac, thus giving up some 15 days.

That prediction will be true for the coming era. Taurus's neck was broken, it would no longer be the constellation that the Sun rose in at the equinox. In the typical stylishly metonymical metaphor of the Sibylline Oracle, whatever "Taurus," the constellation, took away from "Capricorn," Taurus was giving up -- calendar days.

The wording, "smote Taurus's neck," is reminiscent of the Tauroctony of Mithraism, the slaying of the bull Taurus, depicted as having its throat cut. In antiquity the constellation Taurus was depicted only as the head of a bull, not the complete body, as is done today, which is also how the constellation was first depicted in the temples of Mithra circa AD 100.

Before 685 BC, with the Sun rising between Aries and Taurus at the vernal equinox, it is the head of the bull which was already (or soon was) above the horizon at the equinox. After 685 BC, with the Sun rising at 15 degrees of Aries at the vernal equinox (using the divisions of the ecliptic of antiquity), the head of Taurus no longer appeared above the horizon as the Sun rose to announce spring. His throat had been cut.

Capricorn is here the agent of change. Jupiter is in Capricorn throughout the 40-day period. In early January of the following year the Sun and Venus were also both in Capricorn. By this time the blazing of these two planets had subsided long ago, and this condition has nothing to do with the lines about Capricorn (and despite my earlier note about Berossus).

The *Sibylline Star Wars* document is obviously based on an ordered record of changes, and the travels of Venus, but that is no guarantee that it correctly incorporates the starting and completion dates. [\[note 7\]](#)

The display in the sky is nicely wrapped up in the closing lines of the poem (I'll detail the center section below):

*"And the strength of the mighty Shining One
Aquarius kindled. Uranus himself
Was roused, until he shook the warring ones;
And being incensed he hurled them down on earth."*

"Shining One" translates to "Phaethon," and thus refers back to Mercury or Venus. But if it is Aquarius (the constellation) who "kindles the strength," then it was Jupiter who was invigorated. However, Jupiter is not in Aquarius during the 40 days of battle. In July Jupiter was in Capricorn, the next constellation to the west of Aquarius.

However, this is the same displacement we see for the record of the Sun and Moon on June 15th. They are not in Cancer, but somewhat west of Cancer. Likewise Venus and Mercury are not exactly riding the back of a lion, but just west of Leo.

Then "Uranus," who is Jupiter of the family of Uranus, entered the fray, and throws both the Sun and Venus to Earth, that is, below the horizon. "Shook" has to be an understatement. It is possible that Saturn is meant by "Uranus." Saturn is the son of Uranus. (The planet we have named "Uranus" since AD 1781 has nothing to do with the identification of planets in antiquity.)

The oracle (which is a vision of future events) claims that then the world will be set on fire, and the stars will disappear:

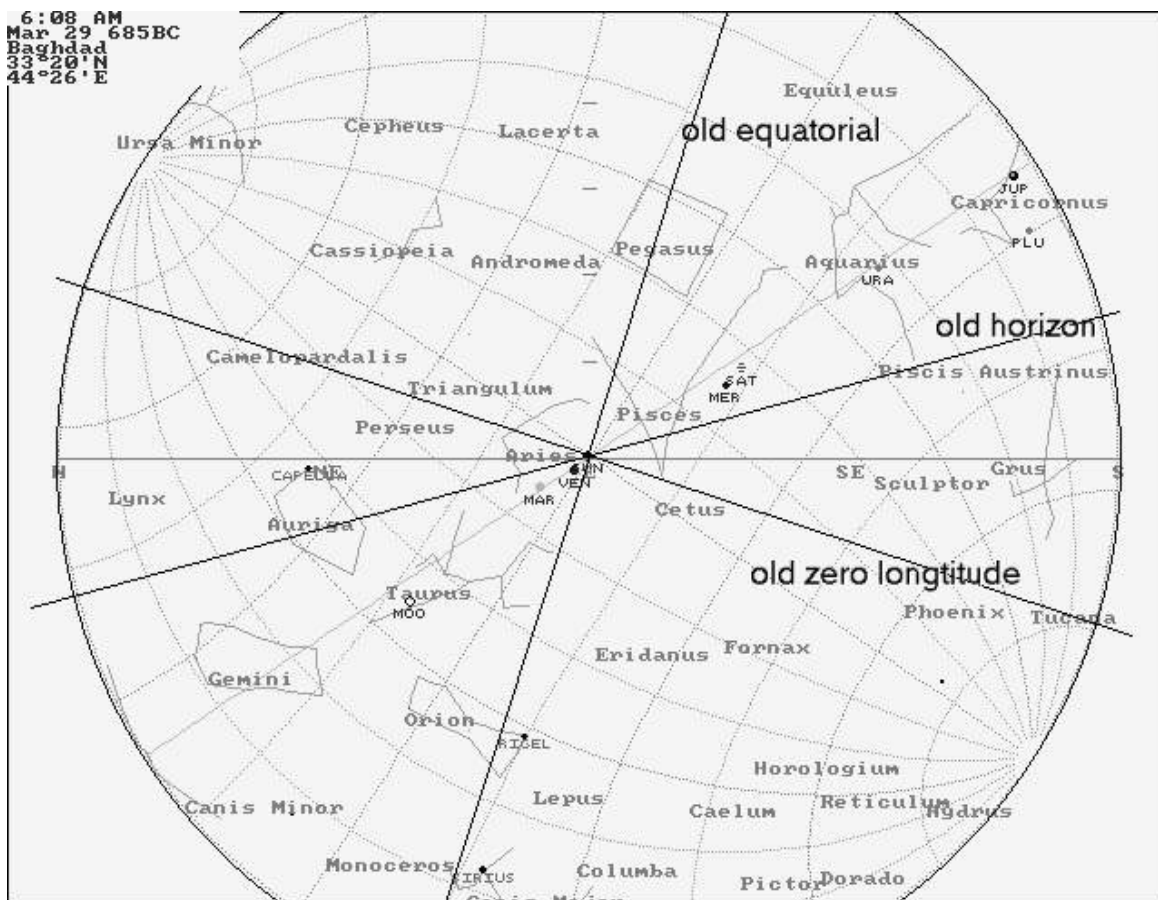
*"Then swiftly smitten down upon the baths
Of Ocean they set all the earth on fire;
And the high heaven remained without a star."*

We should be able to imagine what this looked like. The "baths of Ocean" is the zodiac or the region below the zodiac, but also might be the actual ocean, the Mediterranean. In most of the retellings of late antiquity, which all apparently take some 5th century BC play or tale as their source, possibly a lost play of Aeschylus, *The Heliades* ("Daughters of Helios"), Phaethon falls into the river Eridanus, which likely was identified as a constellation at an earlier time. [\[note 8\]](#)

But in the later retellings Eridanus is simply localized in the west, in the land of the Celts, also often identified as the Po in Northern Italy (which was under Celtic occupation in the early days of Rome), or in Spain, another well-known Celtic region. A location in the west would have been correct, for the

splashdown of the plasmoid of Jupiter would have happened after the Sun had set north of directly west, and would have brilliantly lit up the western skies for hours. Setting the world aflame and the disappearance of the stars is also correct, for the stars would have disappeared in the light of the nine-hour-long flash.

New Locations of the Stars



[Image: East hemisphere of the sky, after 685 BC. From SkyGlobe 3.6.]

The intervening lines of the text deal with the new locations in the sky of the zodiacal constellations plus Orion, Draco, and the star Sirius. All the changes relate to the location of the ecliptic, the equatorial, and the horizon. The change in the starting point of the year was probably noted by the next year, 684 BC. But the change in the location of the polar axis was noticed immediately. The change would move some constellations up in the sky and would move others down. Two lines indicate this clearly:

"Draco disavowed his zone."

Draco, a circumpolar constellation, before 685 BC chased the tail of the Big Bear, Ursa Major, where the polar axis was located. When Ursa Major suddenly dropped "down" by 6.5 degrees, Draco, the most noticeable northern constellation, started to rotate about another space away from Ursa Major. Today it revolves around the star Polaris of Ursa Minor.

"from the Sun's flame Sirius slipped away"

As I noted in prior text, Sirius was formerly located very near the equatorial -- about 2 to 3 degrees below. (See Sirius at the bottom of the diagram above, almost directly on the old equatorial.) After the change Sirius had dropped some 18 degrees below the equatorial. The "slipping away" of Sirius also reveals that it failed to rise or show in June, as it had in the past, and rose instead a month later. Sirius had been the primary star used as a celestial marker for ocean navigation, rising and setting almost directly east and west.

*"Orion would no more
Abide his yoke"*

In November Orion is seen in the southern sky with Gemini and Taurus above his shoulders. This did not change after the polar axis shifted, except in the spacing of these three constellations as seen in the sky. The equatorial cut across the bottom stars of Orion before 685 BC and through the top stars after. (Today it passes through the center of Orion.) The "yoke" might refer to the belt of three stars.

*"the lot of Gemini
Did Virgo change in Aries;"*

"Virgo" here is "the virgin," an almost universal appellation for Venus in the Eastern Mediterranean region ("the maid"), who changed Gemini's lot by being in Aries. Gemini's lot would have been to be suppressed further below the horizon at the start of the year. I am either reading this incorrectly or it is recorded incorrectly, for it would suggest a time of the year when Venus appeared in Aries. Otherwise by "Virgo" the constellation is meant.

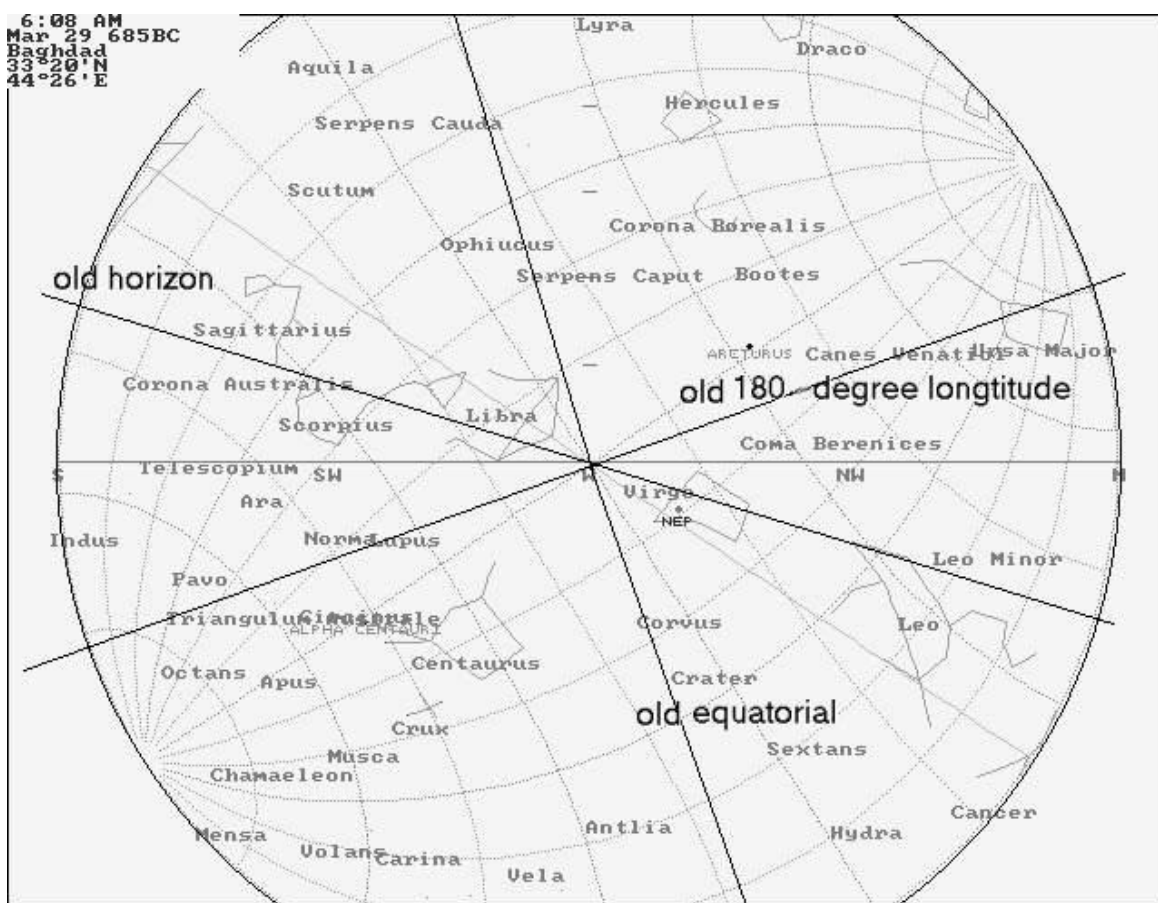
The translation may, in this case, have reversed two constellation names, for at the concluding date, July 25 (August 1, Julian), Venus ("the virgin") was in Gemini, which implies that it was the lot of Aries that had changed. Aries's lot,

of course, was to be the opening constellation at the start of the year -- at the new equinox -- noticed the following year when the Sun rose at the midpoint of Aries, rather than at the start of Taurus.

I should point out also that it was this phrase which led Kugler to the conclusion that the *Sibylline Star Wars* only described the path of the Sun starting in September, when the Sun is in the constellation Virgo (in 100 BC). I read this differently.

*"no more shone
The Pleiades;"*

The above line is another clear reference to the change in the location of the equinox. With Taurus below the horizon at the start of the year, the Pleiades, located at one of the horns of Taurus, would no longer announce the start of spring and the start of a new year.



[Image: West hemisphere of the sky, after 685 BC. From SkyGlobe 3.6.]

All the constellations moved, not with respect to each other, but with respect to the equatorial and the horizon of the Earth. The equatorial is a circle in the sky connecting east and west which is tilted at an angle above the south horizon equal to the complement of the latitude where it is observed. Thus the stars moved with respect to the horizon and the top of the sky.

*"Down into Leo's girdle Pisces went.
Cancer remained not, for he feared Orion;
Scorpio down on dire Leo backwards moved."*

Scorpio did not move backwards. But any review of the zodiac at a later time might note discrepancies which should not be there if the constellations had been designed by God. Scorpio is placed below the ecliptic, as is Sagittarius, and Leo is off the ecliptic in the opposite direction. Both of these locations remained the same before and after. The ecliptic did not move with respect to the constellations.

Cancer (as well as another half-dozen constellations) moved up in the sky, while others sank. "Leo's girdle" is the belt of the equatorial. It should be remembered that both the ecliptic and the equatorial were still strewn with dust in 685 BC. The "zodiacal light" of the ecliptic lasted to AD 1840. The dust of the last ring of the equatorial (the remnant of the Absu) probably lasted to AD 400 or 600.

As I have pointed out elsewhere, these were not minor changes. It is for this reason, plus the lighting up of the day sky by the nova event of Venus and Mercury, plus the enormous flash on the 25th of July, that the event was understood as a war among the stars. When it was over every constellation had moved -- to where it should not be.

Conclusions About Dates

After blazing up in 685 BC, and then failing to disappear in front of the Sun in the west (in late December), Venus showed again as the Morning Star in early January of the next year. So say the *Venus Tablets of Ammizaduga*, or, as Mesoamerica has it, "Quetzalcoatl rose in the east as the Morning Star."

I have no question at this point that the shift of the polar axis and the change in the equinox happened, and happened suddenly, especially when combined with such comments from other sources.

I will maintain that the main "event" concluded on July 25th of 685 BC, with a plasmoid strike from Jupiter. I have detailed the derivation of this date in earlier chapters. The Guatemalan *Popol Vuh* suggests that the ecliptic remained obscured for four days after Hunahpu and Xbalanque jumped into the oven of the Xibalbans. Ovid suggests that the Sun did not show for a day (but then, Ovid places all 40 days in one day).

The descriptions of the phenomenon as a "throne," as a "horse without hips," or, as in Ezekiel's vision, of "brass glowing like fire in a furnace" and a "fire with encircling radiance," all speak to a display with much shorter plasma outpourings ("flames"). This would be the condition of Mercury as it reached inferior conjunction with Earth, and its plasma stream was directed towards Earth, and therefore visually foreshortened.

The Chilam Balam

An accurate Mesoamerican source, the Maya *Chilam Balam* books, reads that the Sun "moved from its place for three months," in Katun 3-Ahau (688 to 668 BC) and would return after "three heaps of years," or at least by the end of Katun 3-Ahau, that is, before the end of a twenty-year Katun period.

As I have pointed out, all five time spans recorded in Book 10 of the *Chilam Balam* use inclusively counted. So the "three months" represent a span of two Mesoamerican Uinal months of 20 days, a total of 40 days. From the *Popol Vuh* it is obvious that Venus and Mercury need to be close together in the sky (they hold hands) at the start of the nova event. June 15 (Gregorian) qualifies, and is, in fact, 40 days before July 25th.

The second remark in the *Chilam Balam* (about three heaps of years) reads as follows:

"After three years [three heaps of years] it will come back into place in Katun 3-Ahau. Then another Katun will be set (in its place)."

We do not really know what "heaps of years" are, but I would guess that they are groups of five, as used on Maya counting boards, and further, that these are Tzolkin cycles of 260 days, and therefore we should count an interval of 14 (three times 5 less one), not 15 (three times five).

The "place of the Sun" would be measured by its setting location along the horizon and matched against calendar records of when and where this was

expected. After the disturbance of the orbit of Earth in 685 BC, and after quiescence had returned, the Sun would rise and set again where expected, that is, on the proper date of our calendar, but not on the same date on the Mesoamerican Tzolkin calendar. It turns out that 14 cycles of 260 days are exactly correct in "returning" the zenithal passage of the Sun to the same Tzolkin calendar day name for a latitude of 17 degrees north. What was important for Mesoamerica in this instance was the fact that the Sun obeyed the Tzolkin.

Of course, the Sun did not return to its proper horizon setting location, at least, not on the same dates. The same Tzolkin day-name and day-number correspond to the same Gregorian calendar date only after 20 Tzolkin rotations. Fourteen rotations are 12 days short. It did return to the same horizon locations for zenithal passage over the sites in Mesoamerica, from which we receive the fiction perpetrated by the Olmecs that the Sun had returned to its proper place. I discuss this in the chapter "Olmec Alignments."

Nonnos's *Dionysiaca*

The writers mentioned above who have commented on Kugler's work have gone on at some length about the fact that Kugler's book does not reach the conclusion it might have originally intended to have. The book is, after all, about Phaethon. Kugler does not place the appearance of Phaethon in 100 BC, but only suggests by the accuracy of the description that we should not neglect the "legends" from circa 1500 BC, or what is thought to be 1500 BC -- that is, the Exodus of 1492 BC.

In fact Kugler supplies a series of sources for the dates of the fall of Phaethon which solidly place the event at the time of Moses. I have no disagreement with this as long as it is recognized that the events at the time of Moses (that is, in 1492 BC) are described by the Typhon legends, not the Phaethon legend. But what we also see, of course, is the Typhon legend reworked to fit the later event of 685 BC. The Star Wars prophesy is not the only instance. Another instance used by Kugler is the *Dionysiaca*, written another 300 years later, in circa AD 450, under the name of Nonnos.

This is a poem detailing the complete adventures of the God Dionysus, composed in the antique style of Homer and Hesiod (as was the style in Greek literature). Book 38 has a description of the Phaethon legend, which again describes changes in the sky overhead, with claims of all the constellations

moving to different locations. The details of the description are almost incomprehensible in terms of an exact reading, unlike the *Sibylline Book*, with the zodiacal animals growling and clawing at each other, but the concluding lines are of interest. It reads:

"No longer did the stars in the Bear, moving in a circle fastened around his hips, dance up high near the northerly pole, but moved to the southwest and wet their dry feet in the Lake of Hesperia at the unaccustomed Oceanos."

Hesperia is a mostly fictitious ocean in the sky, probably based on the Absu, and adjacent to the river Oceanos, which is probably the last red ring below the equatorial. These particulars are mostly a poetic formulation. But more important, here we have the Phaethon legend tied to the change of the dome of the stars, like in the *Sibylline Book*. This is preceded, earlier in the description, with:

"Even the axis, which turns in the centre, began to totter through the whirling ether."

And:

"But winged Virgo sped past Arcturus, approached the Axis and collided with the Wain. The Morning Star sent erring rays to the western rim, and was even then pushing away the Evening Star, which stood opposite."

This actually describes the concluding dates of the event. Venus (Virgo) stood in the sky below Arcturus, maybe 17 degrees further west, while, with the Sun set already, Mercury (now the Morning Star west of the Sun) was already below the horizon and indeed stood opposite Venus (now identified as the Evening Star, for it followed the setting Sun).

Two Meteors

Kugler sees in the *Sibylline Star Wars* a description of the arrival of two meteors, but takes this information no further, perhaps suggesting that these phenomena would have disappeared in a few days. Malcolm Lowery wrote:

"Kugler recognizes in lines 512, 513 and 515 a description of the arrival of 'two enormous meteors of the apparent size and form of the sun and the moon . . . with their characteristic accompanying features', but is happy to leave them out of the further action, accepting them, presumably, as no

more than the excuse the ancients needed to write a poem about the events following."

I would suggest that the blazing Venus seen next to the blazing Mercury would be sufficient to explain "two enormous meteors," especially if they are suggested to be of the same size as the Sun and the Moon (the Sun and Moon are the same apparent size). There are Chinese sources in antiquity which recall that at one time "two Suns" were seen battling in the sky.

Dating the Denderah Zodiac Ceiling

(May 2007) The temple of Hathor at Denderah in southern Egypt contains a very unusual circular zodiac ceiling panel in one of the auxiliary buildings. The temple was rebuilt under Roman rule sometime in the first century. The zodiac panel may have been started under some of the Ptolemies, perhaps a hundred years earlier.

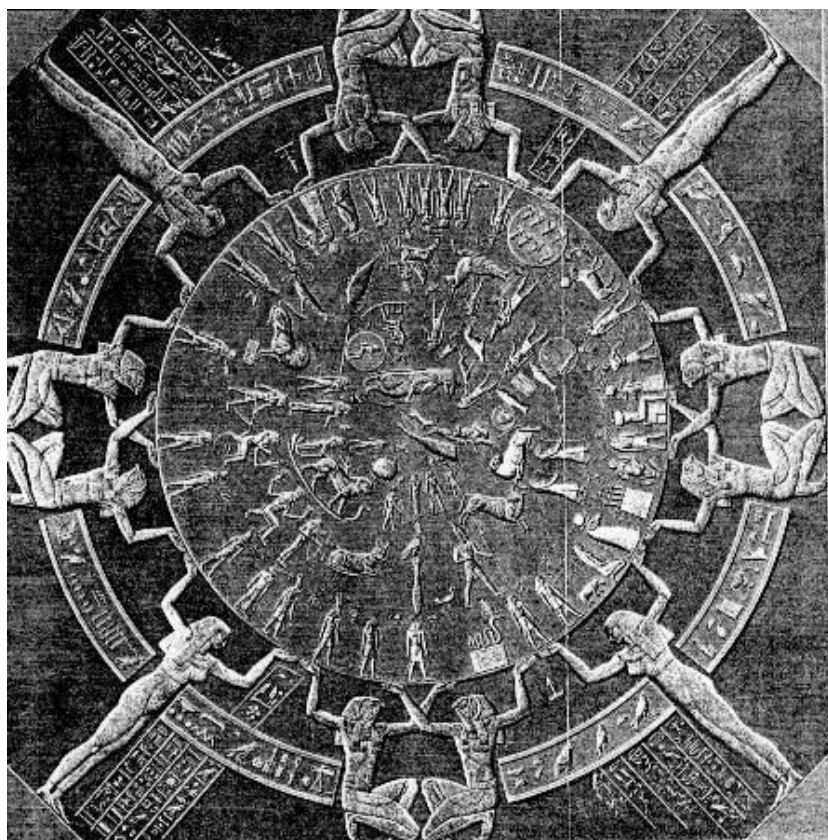
Since its discovery in 1799, various researchers have attempted to determine what date might be depicted by this star chart. The zodiac of the Denderah ceiling is not very accurate, however, as others have noted. But accuracy was never an issue in Egyptian depictions of the stars. It was all about religious symbolism. The iconography of the zodiac is solidly Ptolemaic Greek, however. It politically gives recognition to earlier Egyptian astronomy with the outer border of decans. Decans are a series of stars that rise every hour at night, marking time. There are 36 for use throughout the year, one every ten degrees.

I am using a portion of the locations of planets as determined by Julie Gillentine in "The Zodiac of Dendera" (*Atlantis Rising*, 2001), and Joanne Conman in "The Round zodiac Ceiling of the Temple of Hathor at Denderah" (*The Secret Chambers of the Sanctuary of Thoth*, 2002, on line).

Gillentine made the selection without recourse to the identification of certain figures as planets, so that, for example, I disagree with her selection of Jupiter and Saturn. I selected the duck between Sagittarius and Capricorn as Jupiter. The duck has always been identified as Ra, and Ra is Jupiter.

Conman identifies a number of figures with Gods and Goddesses of southern Egyptian nomes, which I do not think is called for. This is a notion first brought forward in the 19th century. This is just unlikely. There are many more nomes than there are figures in the ceiling zodiac. And it certainly also does not apply

to the figures of the decans, for these were well established, and had nothing to do with local temple concerns.

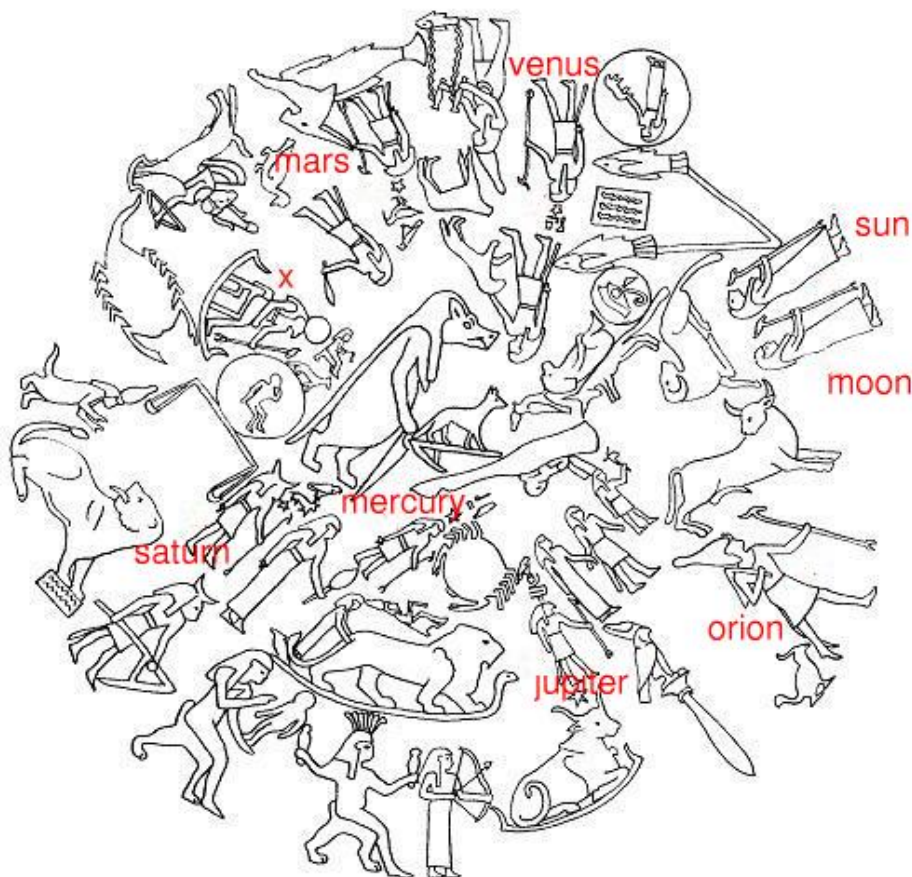


*[Image: Denderah zodiac ceiling;
Approximately 8 feet (2.5 meters) across.
Collection of Louvre Museum.*

The time depicted by the zodiac chart would be about midnight, with Jupiter almost directly south and the full moon in the south southwest. Sirius (the ox in the boat) is shown directly north, but this would be below the Earth and only rotate into the daytime as the skies turned.

From the ceiling zodiac the locations of planets can be read as presented below. Some of the constellations have been turned, shrunk, or dislocated, however. The example which everyone will recognize at once is that Aries is reversed, facing Taurus, and looking over his shoulder toward the west. Some of the planets are erroneously or haphazardously placed. Mars, for example, seems to be placed early in Gemini, away from where it ought to be in Cancer. But Sirius is also below Cancer, which cannot be, because Sirius and the constellations are immovable stars. Sirius belongs below Gemini.

Finding the year and date for this configuration of planets is thus problematic, but it can be done. If Saturn is in Pisces, there are only two or three years which need to be inspected out of every thirty years to find Jupiter in Capricorn. In all cases the month of July or August has to be selected, since the Sun must be in Leo. Mercury will be there also, and Venus should be close by. The appropriate year can be located from the requirement of having Mars in Gemini or between Gemini and Cancer.



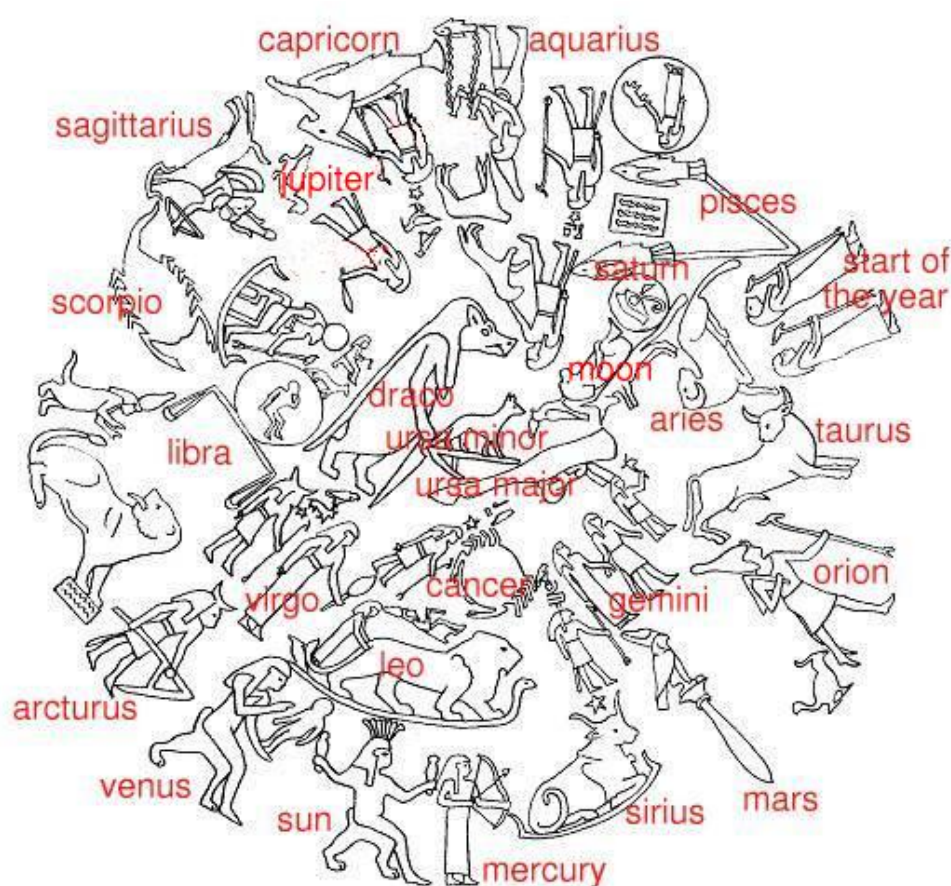
[Image: Figures with Was scepters at Denderah attributed to planets. Decans not shown. Original after Conman.]

There is a question as to which figures constitute the planets. There is a set of standing figures which each hold a *Was* scepter, which normally indicates their status as Gods. (One remains unidentified in Scorpio, plus Orion is likewise equipped with a *Was* scepter.) These are held to be the planets placed in their governing house, that is, each is located in a zodiac sign of importance to that particular planet. The concept that every zodiac sign has a "ruling" planet which has particular potential in those locations has come down to modern times in

astrology, and is called the "exaltation" of the planets. The genesis of this is a complete mystery. It was already established in Babylonian times.

The location of the exaltation of the planets does not constitute a plan for a date for the zodiac, since Mercury (in particular) is much too far removed from the (supposed) location of the Sun in Aries. Mercury is located three or four zodiac signs away in the schema above. I wanted to point this out.

If we are to look for another indication of a date, we have to look at a more correct set of symbols which encode planet names and locations. These are listed below.



[Image: Figures as planets and zodiac signs at Denderah; Decans not shown. Original after Conman.]

- "Venus in Virgo" -- Venus (Isis) with Horus on her hand.
- "Sun and Mercury in Leo" -- Mercury to the west, shown as an archer, the Sun holding two jars, and with a plumed head dress.

- "Mars in Cancer or Gemini" -- This is the crowned falcon on the papyrus plant. He is shown below Gemini, but should properly be below the adjacent Cancer.
- "Moon in Pisces" -- The Moon is the baboon above the Eye of Ra.
- "Saturn in Pisces" -- the figure of the *Eye of Ra*.
- "Jupiter in Capricorn" -- The duck ("Ra") between Sagittarius and Capricorn.

It is this last, the duck as Ra and Ra as Jupiter, which has consistently sabotaged all efforts at determining a date, or even a coherent listing of planets, for everyone holds Ra to be the Sun, whereas for 3000 years Jupiter was identified as Ra. And all too many researchers have thought that the duck in this zodiac is just decorative, like the corresponding *Eye of Ra* in Pisces. The *Eye of Ra* is not decorative, it is Saturn.

Now to determine a date. In the time span of the half millennium preceding the first century BC, when the zodiac ceiling was installed, only three events stand out as universally significant. The first was the lengthening of the year in 747 BC. The second was the Earth shock by Mercury and the burning tower of Babel in 687 BC. Both of these were spring events, with the Sun in Aries.

The third event is the delivery of the plasmoid of Jupiter at the Sun on July 25, 685 BC. I only reached a conclusion about this date when I realized that the baboon in Pisces was a well-established symbol for Thoth, but by Roman times Thoth had migrated its planetary association from Mercury to the Moon. Mercury had all but disappeared from the skies 460 years before the Roman rebuilding of the temple, and the assignment of the messenger of the Gods had passed to the Moon. The Moon should be in Sagittarius on July 25th. It would be in Capricorn two days later, in Aquarius four days later -- roughly two days of displacement for every zodiacal house. The Moon reaches Pisces six days later. Here it is the baboon above the *Eye of Ra*.

This extension of six days after the actual delivery of the plasmoid (on July 25) reflects how soon the skies cleared of plasma at the Sun, and accounts for further events, including the delivery of subsequent smaller plasmoids.

The *Popol Vuh* suggests that it took five days to clear the ecliptic. Speaking of the blowgunner twins, Hunahpu and Xbalanque, who had just been burned up and their ground-up bones cast in the river, the *Popol Vuh* reads:

"And on the fifth day they reappeared. They were seen in the water by the people. The two of them looked like catfish when their faces were seen by Xibalba."

The blowgunner twins of the *Popol Vuh* were seen as catfish. You will find later in the Chapter "The *Popol Vuh*" my comments:

"Catfish were seen, but these are more likely additional minor plasmoid bolts from Jupiter. Since these would have traveled in the ecliptic, they might easily be mistaken for Venus and Mercury, especially when it was unclear where these planets were. The catfish were seen while the day and night skies blazed with the reaction of the Sun to the initial plasmoid strike from Jupiter."

Selecting the baboon as the symbol of the Moon, places the Moon in Pisces. That would bring the close of the event to July 30, Gregorian. The close of the event was the beginning of a new creation. There were no further interferences by any planets after this date. The following spring showed all seven planets in a line in the sky -- the start of a Great Year.

Endnotes

Note 1 --

A number of numismatic sites with an interest in astronomy have suggested that the seven stars might represent a conjunction of all the planets in the sky. It is also suggested that the seven stars represent either Ursa Major or the Pleiades. And, in fact, the earliest coin of this nature dates from AD 76 and is clearly marked TRIO, short for Septentriones, a name for the seven stars of the Wain (Ursa Major) and generally meaning "north."

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Note 2 --

Some conjunctions only last a day, some last a week. The location of the Moon is not hard and fast, since it moves 12 degrees per day.

Oct 5, 7 BC, Sat, Jup, Moon, Mar, Ven, Mer, Sun (setting)

Jul 5, 6 BC, Sun (rising) Mar, Ven, Mer, Jup, Sat, Moon

Apr 6, 4 BC, Moon, Jup, Mar, Mer, Sat, Ven, Sun (setting)

Mar 7, 2 BC, Jup, Sat, Mar, Ven, Mer, Moon, Sun (setting)
Oct 27, AD 1, Sun (rising), Jup, Mar, Ven, Mer, Moon, Sat
[\[return to text\]](#)

Note 3 --

To get a glimpse at how easy it is to calculate planet positions in the past or future, take a look at how Patten and Windsor make these calculations in *The Mars-Earth Wars* (1996), reaching back 2300 years. Patten and Windsor use data listed to many decimal places, but this would not be much different from what was available in antiquity, which had already accumulated 600 years of data by AD 200.

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Note 4 --

The complete Sibylline text follows. I have broken it up into sections to clearly indicate the composition. Line numbers are in brackets.

The opening lines:

*[689] "I saw the threatening of the shining Sun
Among the stars, and in the lightning flash
[690] The dire wrath of the Moon;"*

The battle:

*"the stars travailed
With battle; and God gave them up to light.
For long fire-flames rebelled against the Sun;
Lucifer treading upon Leo's back
Began the fight; [695] and the Moon's double horn
Changed its shape;"*

The lasting change:

*"Capricorn smote Taurus's neck;
And Taurus took away from Capricorn
Returning day.*

The changes in the sky:

*"Orion would no more
Abide his yoke; the lot of Gemini
Did Virgo change in Aries; [700] no more shone
The Pleiads; Draco disavowed his zone;
Down into Leo's girdle Pisces went.
Cancer remained not, for he feared Orion;
Scorpio down on dire Leo backwards moved;
And from the Sun's flame Sirius slipped away;"*

The closing passage:

*[705] "And the strength of the mighty Shining One
Aquarius kindled. Uranus himself
Was roused, until he shook the warring ones;
And being incensed he hurled them down on earth.
Then swiftly smitten down upon the baths
[710] Of Ocean they set all the earth on fire;
And the high heaven remained without a star."*

[\[return to text\]](#)

Note 5 --

The spikes in four directions from the two planets, but especially Mercury, would likely result in the later claim of the crucifixion of Mithra.

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Note 6 --

I have made this statement before, that Venus would have lost its tail and large coma at this time, but this is not at all certain. Only by the time of the writings of Aristotle (384 BC to 322 BC) do we see a definite attempt to separate planets from meteors and more ephemeral phenomena (which last are classified by him as "weather"-- meteorology). Stecchini writes, "It is significant that, after having described the general topic of meteorology, Aristotle begins the

treatment of it by refuting those who say that 'the comet is one of the planets'." The "comet" here is Venus.

[\[return to text\]](#)

Note 7 --

In fact, I have not been able to pinpoint a closing date. The document clearly records all of the travels of Venus between an unexpected blazing in June and (perhaps) the subsequent easterly reappearance -- except that there was no westerly disappearance of Venus. On this occasion, as an ephemeris will show, Venus rode about 8 degrees above the Sun as it was setting in the west, and reappeared the next day in the east at sunrise.

This would explain the missing data at the close of year eight of *The Tablets of Ammizaduga*. I would suggest furthermore that Venus may have changed its orbit with the relocation of Mercury to within the orbit of Venus in the previous year. That, in turn, explains perhaps the fact that Venus set a month late, as noted by Rose and Vaughan, and which remained inexplicable to them. Normalization of data does not tell one anything about orbits.

The date indicated with the Denderah Zodiac ceiling is five days later than August 25. See further text below.

[\[return to text\]](#)

Note 8 --

The constellation Eridanus is identified as a series of stars hanging from the left foot (Rigel) of the constellation Orion and reaching the horizon -- like a river -- even with Orion high in the sky. In July of 685 BC Orion and Eridanus are both west of the Sun and below the horizon at nightfall, but they rise in the east 4 hours before sunrise. Eridanus is located well below the ecliptic and the equatorial. The star Rigel is at the same relative altitude (44.5 degrees at culmination for Cairo in 685 BC) as Sirius (42.1 degrees). The start of Eridanus, which dips down (toward the southern horizon), would thus be located behind the last red ring of the original Absu which also gave Sirius its red color. The blood in this river -- backlighted perhaps by the flash at the Sun, below the horizon -- would be convincing evidence of the death of Phaethon.

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Chapter 28: Language and Causality.

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Contents of this chapter: [\[Consciousness\]](#) [\[Becoming Human\]](#)
[\[Language Development\]](#) [\[Boat People\]](#) [\[Languages and Texts\]](#)
[\[Subjective Consciousness\]](#) [\[Children\]](#) [\[Endnotes\]](#)

**Primates learn from their
peers, not from adults.**

-- Sherwood Washburn [\[note 1\]](#)

And now for something entirely different: Let me introduce *subjective consciousness* at this point, and language and texts as a secondary topic. The reason for presenting this material is two-fold. First, I need to point out that an understanding of events in the remote past is never modulated by abstract metaphors, something we today do with great fluency. The events of the distant past are facts, they never "stood" for something other, excepting perhaps in the use of similes. Secondly, I need to point out how grammar effects the understanding of the world for different people, how it completely and radically changes concepts which we take for granted. This is particularly relevant to an understanding of the following chapters which deal with Mesoamerica.

Consciousness

Subjective consciousness is not biological. It is a learned faculty, like language, and is thus dependent on contacts with other people and includes within its structure the ability to promulgate its use to others by purposeful example. To become *subjectively conscious* means to learn how to *teach subjective consciousness* to others, and thus keep *subjective consciousness* alive. This is no small task, yet we constantly perform the task of teaching through our dialogues with others and we do it automatically.

Even the most ardent micro-evolutionist will have to admit that language and speech were probably not available to humans before about 40,000 BC. (John Halloran at [\[Proto-Sumerian\]](#) believes 10,000 BC to be more accurate.) And

much, much later came consciousness as we experience it today. Of course, our experience of consciousness is so entwined with our identity, and seems so overwhelmingly innate, that anything suggesting differing conditions, like the notion that our experience of extended consciousness -- *subjective consciousness* -- is not biological, but is cultural, will bring most people's thinking on this topic to a complete halt. It is a shock to realize that *subjective consciousness* is only a very recent development.

We are here not talking about consciousness, self-consciousness, or self-awareness. These are qualities possessed by all animals. It allows them to identify themselves, allows them to associate past experiences with their peers and mates, allows knowledge of the thousands of details of a wide-ranging geography, and allows the incorporation of learned experiences. We do all that too, and mostly without thinking about it.

And we point fingers, and understand others when they point. As Malcolm Gladwell notes in *Blink* (2005), "... interpreting a pointing gesture requires, if you think about it, that you instantaneously inhabit the mind of the pointer." Most animals don't get it. Animals do not seem to do well with questions either, which represents a similar displacement into the mind of another person. [\[note 2\]](#)

I will describe *subjective consciousness* as distinct from *consciousness* further below. At this juncture it might be more instructive to list some examples of people who, for any number of reasons, have remained *pre-subjectively conscious*. These include people who are very accomplished, for example, musically, but have never composed anything new or even improvised, people who can draw or paint with mastery but only derivatively and have never produced a new image. Or the person who keeps asking you and others for advice on some question, yet never acts on it. Here there is a failure of imagination, or as others have suggested, a failure of judgment, although I would hold that we are dealing with both the inability to imagine and to make judgments based on what was imagined. This is a poor integration of functions which the left-brain is capable of with the remainder of mental activities which we would call "thinking."

Of course it is possible to get through life without ever accessing or exploring the analogical vistas of the imagination, just as is it possible to converse without ever using metaphors. Such conversation, or such thinking, can certainly present the complexities of relationships, the gripping realities of emotions, and the

humor of situations. And we can still fill a dialog with lies and falsehoods, just as we can deliver biting sarcasm. What can't be done easily is to present or suggest a situation to the recipient of our dialog which is composed, not of reality, but of a what-if situation -- an analogical reality, offered to the hearer for his personal exploration.

The lack of metaphorical thinking in remote antiquity is critical to understanding what we are told by our forebears. The languages in which the first observations of the heavens were rendered were specific and concrete -- as Jaynes suggests -- "end to end." These people were not creating symbols or dealing in mystical religious philosophies; what we are told of was exactly what was seen and experienced.

This is, in fact, what Jaynes proposes, that metaphorical thinking dates only from after 1000 BC. Jaynes demonstrates this through examples and details from the earliest historical texts and through an analysis of cult objects of Mesopotamia and Egypt. Of course, nothing is proven, for nothing can be proven about the mentality of an era we did not participate in. But enough striking examples are brought forward to suggest that his hypothesis might very well be correct. I should point out that Jaynes was completely unaware of the catastrophism developed in this text.

What is more significant is that Jaynes's concept of *subjective consciousness* is based on a working model of the mind which has very large predictive value. This is also why there has been no follow-up to Jaynes's model. Besides stepping away from academic mainstream psychology in writing *The Origin of Consciousness in the Breakdown of the Bicameral Mind* (1976), Jaynes's model, which locates consciousness exclusively in the left hemisphere of the brain and delegates volition to the right half, in effect closed the door to further research, despite the fact that vast behavioral areas remained to be explored, for the basis of the model was largely philosophical, it was not clinical. But it works!

Current stock psychological research, as with neurological research, is based entirely on stringing together data from endless clinical studies. It also tends to be very reductive, equating conclusions from clinical data to elements of computer models and electrical circuitry, despite the fact that the interrupt-based methods of computer processing has no equivalent to the simultaneous capabilities of the brain -- the only true multi-processing system.

You will also see a reductiveness to named parts of the brain as if "firing order" and "activity" are causally meaningful. They are not. The dependence of the

limits of clinical data is equivalent to the stalemate reached in the study of language some decades ago -- a reduction of words to sounds and phonemes without a single notion of how to jump from there to syntax.

But despite the turn by professionals to the academic minutia of clinical studies, the broad concepts of separate left and right brain are alive in popular culture. Separate qualities are often ascribed to the two hemispheres, which are, however, generally totally wrong. To say that the left hemisphere is capable of speech, for example, is completely correct, for we are aware of this faculty. To say that the left hemisphere is logical and the right hemisphere is intuitive is completely bogus. Nothing which may be accomplished by the right hemisphere is accessible to consciousness, so that nothing can be said about the workings of the right hemisphere except by inference. And the inferences come from feelings, from reminders and admonitions (often inappropriate) which spring to mind, and from images that impose themselves on consciousness. [\[note 3\]](#)

Malcolm Gladwell, 2005

A book by Malcolm Gladwell, *Blink* (2005), relates the ephemeral nature of the communication of the silent right brain with the conscious left. The book opens with attempts of the Getty Museum in California to verify the authenticity of a Greek statue, a kouros, dating from 500 BC which had been offered for sale to the Getty. The investigation, which included stylistic considerations, the provenance of prior ownership, the source of the material, and the evidence of 2000 years of aging, took 14 months.

In 1986, at the completion of the investigation, the kouros was viewed by a number of experts in ancient Greek sculpture. Frederico Zeri (on the Getty's board), stared at the kouros's fingernails when unveiled -- they looked wrong. Evelyn Harrison (an independent curator) felt something was amiss and recommended against purchase. Thomas Hoving (Metropolitan Museum of Art, NY) recalled that the word that jumped into his mind at the first sight of the kouros was, "fresh," hardly appropriate for a statue reputed to be 2500 years old. Hoving also recommended against purchase.

The Getty shipped the kouros to Greece and called a conference of experts. Here are additional responses: George Despinis (Acropolis Museum, Athens), to quote Gladwell, "took one look at the kouros and blanched." Georgios Dontas (Archaeological Society, Athens), saw the statue and felt cold, he felt, he said, "as though there was glass between me and the work." Angelos Delivorrias

(Benaki Museum, Athens) felt a wave of "intuitive repulsion" at the first sight of the sculpture.

The experts were eventually vindicated; the kouros was indeed a fake. But now look at the broad base of opinions of the experts: All of them made up their mind within one or two seconds after first seeing the kouros. Not one of them could articulate the reasons for their opinion or "revulsion." Note that the feeling of incorrectness seemed to be universal, but also note the words which entered their minds, and the image of the glass. These were all articulate people, yet they were stumped to explain their "feelings."

What is most amazing is that the inarticulate part of the minds of these six curators managed to come to identical conclusions in under two seconds each, when the Getty had managed to get the wrong answer after 14 months of expert investigations. The speed is phenomenal, but the inarticulateness and terseness of communication between the silent right brain and the conscious left mind is a definite drawback.

Gladwell, following current theories, writes, *"The part of our brain that leaps to conclusions like this is called the adaptive unconscious, and the study of this kind of decision making is one of the most important new fields in psychology."*

Daniel Goleman, 2006

As a second example of the reduction of Jaynes's left rear and right rear hemispheres to smaller constituent parts of the brain, consider Daniel Goleman's book *Social Intelligence* (2006). Goleman uses both sociological and neurological clinical sources in an attempt to define social interactions as dependent on pattern recognition. Here the high-speed recognition, which he calls the "low road," at least has a clear method of communicating its findings to the conscious left brain. On recognizing an emotion in others, the observer will duplicate this in his own body. Goleman calls it "emotional contagion."

"Emotional contagion exemplifies what can be called the brain's 'low road' at work. The low road is circuitry that operates beneath our awareness, automatically and effortlessly, with immense speed. Most of what we do seems to be piloted by massive neural networks operating via the low road - particularly in our emotional life."

The "high road," writes Goleman:

"... in contrast runs through neural systems that work more methodically and step by step, with deliberate effort. We are aware of the high road, and it gives us at least some control over our inner life, which the low road denies us."

The "immense speed" of the low road, however, is relative. The brain can operate at an immense speed with familiar material. All of us have been looking at faces and associating facial expressions with emotions since we were a month old. The same operation "beneath our awareness" takes hold in typing or playing a musical instrument. But ask yourself a difficult question, and it may take weeks or months before an answer "pops into your mind" based on all the information you had already gathered. It is the "unaware" right brain which will have reviewed all the relevant data that you have consciously accumulated, perhaps over a lifetime.

Goleman lists (after Matthew Lieberman) some brain areas involved in processes which escape conscious awareness, as the amygdala, basal ganglia, lateral temporal cortex, ventromedial prefrontal cortex, and dorsal anterior cingulate cortex. It is a long list.

I would be more comfortable with Jaynes's model, which posits a fully functional second mind, but one which has almost no control over speech, and whose operation remains completely inaccessible to consciousness. It is equivalent to being inhabited by another psyche, one who is smart, fast thinking, correct in most situations, but, as has been observed, also willful, impatient, and quickly annoyed.

Michael Gazzaniga, 2008

The third example is a book by Michael Gazzaniga, *Human: The Science behind What Makes Us Unique* (2008), which discusses split-brain (commissureotomized) patients. "Being inhabited" is a concern specifically addressed. Gazzaniga writes:

"Why don't split-brain patients have dual consciousness? Why aren't the two halves of the brain conflicting over which half is in charge? ... Are consciousness and the sense of self actually located in one half of the brain?"

[\[note 4\]](#)

Yes, Jaynes would say. Gazzaniga points out that attention remains fixed on a single spatial location after the brain has been split, as if the two halves were still working together. (Of course this is a fiction. We cannot tell what the right brain is concentrating on.)

He also notes Paul Broca's research (in the late 19th century) which located the center for speech on the verbal left hemisphere, writing, *"A split-brain patient's left hemisphere and language centers have no access to the information that is being fed to the right brain."*

Thirty years earlier, Jaynes wrote about that also. Information can visually be fed separately to each hemisphere by showing separate images to the left and right eye. (There is some loss of information, since the optical nerves of the eyes each split the field of view between the left and right hemispheres.) Under this condition the left and right hemisphere can be asked to respond appropriately to the separate images, and this will be accomplished, for both the left and right brain can understand speech. Since the hands and fingers are almost totally under control of either the right or left brain, the response (like picking an appropriate object) will reflect the decisions of a single hemisphere. This has led Gazzaniga to some conclusions about the separate hemispheres, as follows. (I'll note the right as silent, the left as verbal in the following.)

"Although the [silent] right hemisphere remains superior to the isolated [verbal] left hemisphere for some perceptual and attentional skills, and perhaps also emotions, it is poor at problem solving and many other mental activities"

This badly short-changes the right brain. Goleman, in the previously quoted book, in essence suggested that the silent right brain, or the parts of the brain unavailable to consciousness or introspection, is superb at gauging emotions. Gazzaniga calls it "face recognition." The silent right is also capable of completely logical analysis of data, unlike the left brain which tends to make up even incorrect theories, as the author points out. Gazzaniga writes:

"The [verbal] left hemisphere, on the other hand engages in the human tendency to find order in chaos and persists in forming hypotheses about the sequence of events [in this example] even in the face of evidence that no pattern exists: slot machines, for instance."

The use of the phrase "human tendency" takes us beyond speculation. Now calling the left brain with its apparent inherent need to come up with theories,

"the interpreter," Gazzaniga finishes his analysis on a poetic rather than a scientific note:

"How is that two isolated hemispheres give rise to a single consciousness? The [verbal] left-hemisphere interpreter may be the answer. The interpreter is driven to generate explanations and hypotheses regardless of circumstances. The [verbal] left hemisphere of split-brain patients does not hesitate to offer explanations for behaviors that are generated by the [silent] right hemisphere. In neurologically intact individuals, the interpreter does not hesitate to generate spurious explanations for sympathetic nervous system arousal. In these ways, the [verbal] left-hemisphere interpreter may generate a feeling in all of us that we are integrated and unified."

The waters have been seriously muddied. Jaynes covered all this 30 years earlier, and without recourse to vapid generalizations about consciousness or "human tendencies." Let me start at the beginning, and review what we know.

Becoming Human

As a brief summary: Humans were not always *subjectively conscious*. The nature of *subjective consciousness* was explained in the text. As *subjectively conscious* humans, we are at best 3000 or 4000 years old (2000 to 1000 BC), with a "recorded" pre-history dating back 5000 years (to 3000 BC), and not the slightest significant amount more. All history starts there. There are objects and constructions from before 3000 BC, but they are certainly not "ours" -- not the work of *subjectively conscious* humans. Neither is much of what can be dated to before about 1000 BC. We owe our humanness, like the genesis of Earth's biology, to the "Gods of Creation" -- the planets, and their catastrophic interferences with Earth.

It might have gone another way. *Subjective consciousness* could have never happened. We could still be chipping flints, as *Homo erectus* did for a million years without improving on their one stone tool. Even today there is a great diversity of *subjective consciousness* in the world, a clear indication, I think, that it is not a biological function. Our humanity is something we have to actively work on. We are a gregarious species, a social one, and, as a group, look to others for authentication and authority. That is dangerous because this particular behavior is biological, and represents a fallback position when *subjective consciousness* falters.

We are animals, although we like to think we are different. Our biology is fully integrated into the domain of the mammals. We may have a few features not shared with other mammals, but most are shared. Primarily, like other mammals, we give birth to immature young and need to spend a long time teaching them. All mammals teach their young and that is crucially important to humans. This teaching is overwhelmingly biologically driven, and a subject often completely neglected by anthropologists and archaeologists, for it is "women's work" -- like spinning whorls or all those Venus Figurines. It does not deal with weapons, hunting, or economics. [\[note 5\]](#)

Becoming "human" -- that is, *subjectively conscious* -- was a chance event. There is no biological cause. Language is a prerequisite, but language has the same status -- it also has no biological basis and has to be learned. There are, however, some requisite mechanisms for language which are biological. We have to have a voice box located high in the throat and nasal cavity large enough to produce a range of sounds and we need a brain set up to allow lateralization of the speech center. (Some brain functions are lateralized in other mammals also.) There are other prerequisites which are shared with mammals, like the ability to learn rapidly, especially at an early age, and parents willing to teach what they in turn have learned.

The cat brings a live mouse back to its litter of kittens. They play with the mouse, eventually kill it and eat it. The kittens have learned about mice, about the chase, about killing mice, and eating them. When the kittens grow up, they bring mice back to their own kittens. That they also learned.

-- observation, 1983

The structure of languages, their redundancy, variability, and complexity of expression are all at the service of teaching -- and not just teaching children, but adults also. The same is true of *subjective consciousness*. Whenever we engage with others, we are constantly proposing a new consciousness with our expressed thoughts about areas of interest. These are proposals for alternate and new mind-space scenarios. They are new -- to the other person -- because what we express is our own, and seldom the mental experience of the other person. Teaching never ends.

Language Development

The enormous number of constantly changing languages and the vast differences in grammars are proof enough that languages are not biologically mandated. The versatility of humans allowed languages to develop. However, although the existence of humans -- hominids -- stretches back millions of years, languages are not thought to be much older than 40,000 years. Some stroke of luck introduced the notion.

As a species we are deprived of a number of communication possibilities that are well-developed in other species. We have language because we happened to have made use of what we had: a voice box which can make very complicated discrete sounds, the ability to identify sequenced sounds, an inventiveness -- you might even say, playfulness -- beyond anything seen in two million years, an unlimited food supply, and lots of free time. Altogether, language seems to have little purpose until recently, when it became the basis for *subjective consciousness*, and looks more like an accident than an adaptive evolutionary trend with some survival purpose. It looks, in fact, more like a game that was played among humans, something which we readily acknowledge in our casual banter with others. [\[note 6\]](#)

All mammals communicate, and gregarious mammals do so in complex ways which remain mostly outside our ken. And it is all about food, sex, and young, and territory and enemies. Dogs, originally as wolves (100,000 to 60,000 years ago), are gregarious, and they growl, howl, and grunt, and have a dozen barks. They also use body language and facial expressions, very similar to us, to communicate. (Dog gestures are easy to learn, by the way, and can be used effectively to "talk" to dogs.) So far, so good. We do all that. We can communicate with grunts, talk with our hands, and express ourselves with facial gestures. And, as such, we need nothing beyond hand waving and a few grunts for communal food gathering. [\[note 7\]](#)

But dogs (wolves) also communicate in ways completely beyond our abilities. They live in a Smell Universe which is absolutely amazing and unknown to us. A wolf (dog) rolls its back on a killed animal and carries the smell back to the den -- often dozens of miles away -- to identify the prey by species, age, health at the time of death, and the age of the kill. The route to the kill is attached to the reporting wolf like a map of smells so that the home wolves need not be guided. They know what landmarks were trotted past, how far to go, and can home in on the prey during the last part of the trek. They are not led by the wolf who brings back the news.

Dogs (rats also) have a bundle of nerves connecting the smell centers of the left and right hemispheres of the brain which is 10 times the diameter of our left to right speech connection. That means a circuitry 100 times more abundant in neural connections than what we use for speech. These animals have an integrated brain capacity dedicated to smell which is thousands of times larger than our capacity altogether for vocabulary, grammar, speech, and memorized names and phone numbers.

You cannot play "peek-a-boo" with dogs, as you can with small children. You will continue to "be there" for a dog even though you cannot be seen. The three dimensional Smell Universe has a fourth dimension in time. When I come home with my dog, she sniffs the stairway space to determine if any occupant of the house has gone upstairs, and (I suppose) when. Dogs also read the emotions of other dogs (and humans) by smell in addition to using visual signals.

Dogs are carnivores, and are attuned to the sounds, smells, and movements of prey, and thus are very aware of the same among each other. We (or related ancestor species) have been scavengers and predators for about 2 million years, maybe more. We certainly should also be attuned to sights, smells, and sounds, and thus we could be expected to have developed a language made up out of these senses.

But we have no left-right connection in our brain at all for smell. In fact our sense of smell is the only one which does not cross over in the brain, unlike all others (sight, hearing, touch, as well as all motor and autonomic nerve control). Our sense of smell is very rudimentary. That leaves us with sight and sound. And here is where things get complicated. We have areas in the rear brain which are able to make minute differentiations of sounds, and especially time-separated sounds. The area makes a slight impression on the skull (or the skull accommodates) and this is suspected as being in development with *Homo erectus* and *Homo neanderthalensis*.

At that point in our development, we could tell bird calls apart, but, aside from identifying animal calls, sound identification was useless to us in hunting. We were by design a species which roamed the edges of the savanna (supposedly) where our visual acuity (and our ability to run after a gazelle until it fell down from exhaustion) was much more important than sound. We moved from the savannas to forests and rivers where sound plays a minor role for us. Our visual acuity, however, exceeds that of dogs and wolves. We gathered food, whether plants or fish or large animals, by sight, not by sound.

Yet we have a well-developed capacity for differentiating sounds. We can tell *where* a very small object falls on a hard floor from the sound. Dogs will smell for it. We do not know the genesis of our enhanced hearing abilities, but most likely it served as a monitoring sense in communal groups. We have been gregarious forever. We have always lived in groups. We can follow a single conversation in a babble of talking voices. Eyes and hands could be used to pay attention to one task while hearing kept us aware of the activities of the group.

Our acute hearing is also of significant utility in child rearing. Our hearing is acute enough to spot the emotional content of a baby's voicing by the inflections. We can differentiate between degrees of displeasure and degrees of joy, and the whole range of other emotions and needs. (Dogs can do this also.) Our young are born in a most inept state and we need to care for them for a very long time. Next to eating nuts and berries and bringing home game, caring for children is the most time-consuming activity we ever undertook as a species. Child-rearing has probably always been a communal activity, but there are other things for the community to do as well, and since you cannot watch children constantly, sometimes you have to listen for them instead.

I don't think the start of language involved some spear-carrying Cro-Magnon coming home and having to invent the phrases, "Me-kill. Caribou. Come-with. Slice-up. Bring-home." It probably originated while watching and listening for kids, and sitting around in the spare time making up jokes, "Tickle, tickle, ha ha ha." [\[note 8\]](#)

Children have to be taught everything. Children learn through repetition, and humorous situations are the ones they would like to repeat or re-live. Whacking a child for stealing meat out of the pot, or shushing them away from hot coals, is not the type of activity adults and children would repeat just for the fun of it. But jokes and funny situations are. They are repeated and re-lived voluntarily.

If, in fact, there is anything "primitive" in language, it is humor. It runs consistently through all languages and through the speech of normal adults as well as brain-damaged people. My mother-in-law, with complete loss of expressive language and a severe impairment of receptive language due to two strokes, would still react to a funny situation appropriately.

And, additionally, there is nothing as universal as the ability to make puns. Puns come out of nowhere. They seem to arrive from some very primitive speech level. Puns seem to implicate the fun intellectual relationships between words of

a basic vocabulary listing which exists in the mind. Even reasonably intelligent dogs invent jokes, but they cannot conceive of puns.

Language is not necessary to obtain food. We lived in a veritable pantry for tens of thousands of years. A sparsely populated world provided nothing but food for omnivorous humans. I believe that we developed language to entertain ourselves in all our free time, as we played. Play is a common characteristic activity of all mammals, and for children (as for all young mammals) play is learning.

It only takes two or three people to start an attempt to repeat and recall a funny situation. It takes very little to come up with a few nouns and verbs, and then you are off and running. A child moves from one-word sentences at 18 months to fully developed 4- and 5-word sentences in the span of a few months. Children who are never taught language will learn at any age, and within a few months.

A few adults can "invent" language in the same span of time. And with children around it will propagate generationally. Since it is a learned activity, it will incorporate its own teaching methods. We so readily teach children language because we ourselves have learned to teach language from our parents.

Language also propagates geographically. When talkies meet a non-talking group of people, the non-talkers will be talking in short order. This has been experienced repeatedly when signing deaf people have been introduced to groups of non-signing deaf people. They invent a common speech (differing from the signing originally used by the signers!) in a matter of weeks. [\[note 9\]](#)

The largest mystery of human language is that it is only about 40,000 years old (or much less), whereas modern humans have been around (by inference from rates of change of mitochondrial DNA) for 100,000 years. In itself that would tell you something: neither language nor grammar are biological. It is not like an appendix. It didn't "evolve" as a brain function or some neurological structure, not, at any rate, as part of the biology of our species. It evolved culturally. The rapid changes still seen in many languages today, and the enormous diversity of "grammars," also point to cultural evolution.

The biological structure needed for speech includes, besides a voice box of the proper dimensions, the enlargement of nasal passages. We don't see this in Neanderthals, but we see them fully developed in the first moderns of the archaeological record. From that point on our voicing and sound-recognition went hand in hand.

The Cro-Magnon types existed for 60,000 years (as in the Levant) using only the primitive Mousterian toolkit developed by and used by Neanderthals. And then, suddenly, about 40,000 or 50,000 years ago, we see the Cro-Magnon toolkit spring to life in southeastern Central Asia and the adjacent western Central Europe region, along with pierced shells and beads, carved ivories, limestone statues, bone needles and other household and hunting implements, decorated spear throwers, and, in Southwestern Europe, the first painted caves. None of these had ever been produced by any other hominids during the previous 3, 6, or 12 million years. [\[note 10\]](#)

The suggestion is that language suddenly developed 50,000 to 40,000 years ago. Wherever it developed, it would have spread like wildfire through adjacent populations of humans. It would have been the coolest thing next to pressure flaking. Language might have been the more easily taken up if the main attraction was the material culture of the nearby talking Cro-Magnon tribe. [\[note 11\]](#)

You have to admit that techniques like making buttonhole borers, detachable harpoons, or pressure-flaked serrated knives are not biological "evolutions" -- they are cultural evolutions. The sudden development and variety of Cro-Magnon's toolkit is *absolutely astounding* compared to the million years that Homo erectus used a single general-purpose bi-faced hand-axe as their only tool, or the uniformly sized flint "side scrapers" fabricated by Neanderthals for 200,000 years.

There are other parallel developments that are less easy to trace. Making cords, knotting nets, spinning, and weaving -- all point to a genesis in remote antiquity of about the same date. Mixing and compounding colorants were definitely within the scope of Cro-Magnon, as witnessed by the decorated caves of France and Spain and elsewhere. The first pottery dates from about the same time, in Japan. [\[note 12\]](#)

You would expect that language had something to do with that, but it is nearly impossible to describe in words how to knap flint or proceed with pressure flaking. In fact, language is not needed to pass on the knowledge of flint manufacturing or spinning but rather language is used to come up with the ideas for the uses of flint or threads. Language is descriptive, and any one description develops another, by way of metaphorical extension.

"The grand and vigorous function of metaphor is the generation of new language as it is needed. ... "

"[Metaphors] literally create new objects. Indeed, language is an organ of perception, not simply a means of communication."

-- Julian Jaynes

From language came ideas -- suddenly and in wild profusion. That is where all the new tools came from. They were "made to order." A single human with language is capable of generating and specifying a range of ideas far beyond anything the whole rest of the mammal world was able to think of collectively in a billion years -- or Homo erectus was able to generate in over a million years.

What we have to conclude is that about 40,000 years ago humans came to a new beginning. With the addition of language, the world was totally modern. Soon all the edible plants had been named, all the huntable animals had been identified, every cave had been explored and decorated. Although language is not needed for demonstrating household tasks, naming a plant is a lot easier than locating the plant as an example. Language introduced new possibilities across the board. Anything could be invented which could be described -- tools and techniques were invented as needed.

And language allowed telling stories. We don't really know much about the stories; we only have the numerous instances of rock carvings and the painted caves which may point to such activities. When a painted cave depicts a herd of deer swimming across a river, it would certainly suggest a story activity to us, as do the cliff wall drawings in the Sahara of cattle roundups and dancing, although these last may be much later.

The Cro-Magnon toolkit coincides with the start of the last major glaciation (in Europe). Anthropologists insist that Cro-Magnon grew up during the severe cold of a major glaciation. I think that they grew up in a mild climate south of the northern glacier. More likely they had purposefully entered Europe as new hunting territory. But with the end of the glaciation it got colder and the migratory herds started to relocate northeast into Central Europe and into Northern Asia. The Cro-Magnon followed, now equipped with an advanced lithic technology for efficient hunting, portable kitchen utensils, a knowledge of the constructing of shelters, and of boats, rope, netting, and clothes, and very soon the techniques of spinning and weaving. It was language, also, which supported the social order needed for the Cro-Magnon trek eastward into Asia.

[\[note 13\]](#)

Boat People

Distance was no barrier in antiquity, as others have noted, and especially for hunters. By 35,000 years ago moderns had moved from Asia into all the continents faster than any species had ever spread, and in some cases much earlier. Australia was reached by 60,000 years ago.

People spread out to get away from each other, and migrated to new areas to feed an expanding population, and this spread ideas widely. There are some clear signs of immensely wide contacts. Spinning and weaving, for example, are a very ancient practice, and spinning whorls are found worldwide and are identical everywhere. And finally there is the racial demography of Asia, with its parallel bands of three or four distinctly different human "types" from north to south, an indication of distinct groups all traveling east (or west, at an earlier time) to populate new territories -- and meeting the coastal populations which had arrived 20,000 years earlier. In the Americas we see the same bands -- linguistic in this case -- running in a north-south direction, an indication of arrivals of distinct groups via the Pacific coast.

At the U. C. Berkeley, Johanna Nichols has, for 15 years, classified languages by grammatical similarities to come up with relationships, rather than using the traditional language trees built on vocabularies. After 150 years of studies, finding relationships of vocabularies has only reduced the 5000 or more languages of the world to some 300 primitive types, with no indication of a connection between them.

The use of grammar as the connecting thread makes sense. All versions of pidgin English are identical in that the speakers use an English vocabulary overlaid on their native grammar. Grammar is very conservative, and it changes only slowly compared to words. The most astounding result of Nichols's work has been the identification of core grammars which spread up the east coast of Asia and down the west coast of the Americas. [\[note 14\]](#)

"In Nichols's mind, the picture is clear. An enormous and sustained wave of human migration started about 50,000 years ago somewhere in Southeast Asia. Over thousands of years, successive bands of people spread out from the region. They could move relatively quickly because they were coastally adapted -- they knew how to make simple boats and make a living from the sea. Over thousands of years, some carried their languages south and west through coastal New Guinea and into Northern Australia, while others

moved clockwise up the coast of Asia, across the Bering Strait into Alaska, then down the west coast of North and South America."

-- Bob Adler scicom.ucsc.edu/SciNotes/9901/echoes/echoes.htm

"Simple boats" is contemporary chauvinism. It also seems clear that the trek along coastal South America was north from Antarctica. With the withdrawal of ocean water by glaciation, the coasts were cleared to reveal the plains of the continental shelves. Oceans may have been calmer. The course of travel would have been from river to river along the coasts. There are rivers every 25 miles (40 km) or so mostly everywhere. Humans stuck close to rivers because, like all primates, we require enormous amounts of drinking water. The rivers additionally were the routes inland.

Languages and Texts

In previous text I have offered snippets of historical documents in evidence on the presumption that our forebears at least had the wits to be able to keep records, even if they didn't develop particle physics or historiography. But these records and many of the later narratives cannot be read directly from our cultural perspective, which introduces the bias of modern values and the world-view derived from our particular grammars and what we think we know. It is critical to have an understanding of the worldview of the people who wrote the records of antiquity, and for this a look at the languages of those records might be useful.

I am no linguist, so this overview will be fairly brief and may not be accurate. In most instances I have only discussed some aspects of texts. This may shine some light on the underlying languages and grammars.

The language base is what forms the cognitive processes used by a people in their perception of the world. The Indo-European languages are solidly based on the concept of time as a series of "events" which flow from the future to the past through the present. The verb forms and their declensions certainly show this. We face the future. "Time is like a river," said Heraclitus, facing upstream, "you cannot step into it twice."

However, this is not true for most languages. Many languages do not require people to recognize "time" as a flowing substance or for time to have significance. There are large differences between languages, which cause

different speakers to use entirely different analytical methods in reaching an understanding of the world. There is certainly an ongoing convergence among the radically different viewpoints on the world (which can be seen as early as in Mesopotamia) and today more so with increased contact between people with differing languages.

... American Languages

Overall concepts of time are cultural (so is the "value" of logic, by the way). This was pointed out by Edward T Hall in books on cultural differences (*The Silent Language* (1959), *The Hidden Dimension* (1966), and others), dealing with personal space, the concepts of self as related to the body, and, most amazingly, difference with respect to an understanding of time.

Some of this was based on earlier observations by the linguists Edward Sapir and Benjamin Whorf of two North American Indian languages. Whorf pointed out that the first concern of Hopi is actuality, and of Navajo, the type of activity. Hopi belongs to the Uto-Aztecan language family group which includes Nahuatl, spoken by the Mesoamerican Aztecs, and the *lingua franca* of the Classical Era Maya. The language group is found in the Western United States, away from the coast, along the west coast of Mexico, and into Nicaragua, interspersed with other language groups.

The Sapir-Whorf Hypothesis (as it is known) suggests that language affects how people perceive their reality -- the content and structure of a culture is directly related to the content and structure of a language, that is, of the grammar of a language.

"The commonly held belief that the cognitive processes of all human beings possess a common logical structure which operates prior to and independently of communication through language is erroneous. It is Whorf's view that the linguistic patterns themselves determine what the individual perceives in this world and how he thinks about it."

"The -- for us -- self-evident distinction between past, present and future does not exist in the Hopi language. It makes no distinction between tenses, but indicates the validity a statement has: fact, memory, expectations, or custom."

"There is no difference in Hopi between 'he runs' 'he is running, 'he ran,' all being rendered by 'wari' -- 'running occurs.' An expectation is rendered by 'warinki' ('running occur [I] daresay'), which covers 'he will, shall, should, would run.' If it is a statement of a general law, 'warinkiwe' [sic?] ('running occur, characteristically') is applied (La Barre, 1954)."

"The Hopi 'has no general notion or intuition of time as a smooth flowing continuum in which everything in the universe proceeds at an equal rate, out of a future, through a present, into a past.' (Whorf 1952)"

"Instead of our categories of space and time, Hopi rather distinguishes the 'manifest,' all that which is accessible to the senses with no distinction between present and past, and the 'unmanifest' comprising the future as well as what we call mental."

-- originally at newciv.org/ISSS_Primer/

From the same source, on the Navajo, and their primary concern with the type of activity:

"Navajo has little development of tenses; the emphasis is upon types of activity, and thus it distinguishes durative, perfective, usitative, repetitive, iterative, optative, semifactive, momentaneous, progressive, transitional, conative, etc., aspects of action."

Writing in *Language, Thought, and Reality* (1956), Benjamin Whorf states:

"We cut nature up, organize it into concepts, and ascribe significances as we do, largely because we are parties to an agreement to organize it in this way -- an agreement that holds throughout our speech community and is codefied in the patterns of our language. The agreement is, of course, an implicit and unstated one, but its terms are absolutely obligatory; we cannot talk at all except by subscribing to the organization and classification of data which the agreement decrees."

Hall, writing in *The Hidden Dimension* (1966), comments on the fact that Whorf became fluent in the Hopi language, which he studied for years, but with some effort. About Whorf's efforts, Hall writes the following:

"Whorf discovered part of the difficulty when he began to understand the Hopi concepts of time and space. In Hopi, there is no word which is

equivalent to 'time' in English. Because both time and space are inextricably bound up in each other, elimination of the time dimension alters the spatial one as well."

He quotes Whorf as:

"The Hopi thought-world has no imaginary space ... it may not locate thought dealing with real space anywhere but in real space, nor insulate space from the effects of thought."

Hall concludes:

"In other words, the Hopi cannot, as we think of it, 'imagine' a place such as the missionary's heaven or hell."

I am quoting Hall here to show how divergent the reality of the Hopi might be from a reality based on the Indo-European grammar of tenses. The failure in being able to imagine a place which could only exist in the mind, which Hall suggests above, seems like a failure of *subjective consciousness*, but this statement is hardly adequate evidence.

Following chapters will need to deal with translations from the Mayan and these will point out the very apparent lack of concern for sequences in time, although "history" was certainly understood. There will also be an inexplicable certitude of time existing in a rotating series with a scale of no more than 250 years. And where we would attempt to establish causal connections between events through their apparent contiguity in time, the Maya feels the need to establish events as the actions of some agent -- to the point, at times, of making up names. Both of these are pointed up above for the related languages of the Hopi and Navajo.

"I mentioned in relation to the units of measure that the Mayas did not seem to have the same concept of time as ours. This would seem strange if we take into account an overwhelming majority of inscriptions which have relation with records of periods of time. However, in the Maya language there does not exist the word 'time.' The most common expression is 'kinil' meaning in relation to the sun, or days."

-- Nexus Tzacol, from Project Ahau (Internet).

Keeping this in mind will help with understanding, even though the Mayan texts I have accessed are only available to me through translations, at times through

two other languages. More on Mesoamerican texts further below.

... Sumerian texts

Neither Sumerian nor the later Akkadian is an Indo-European language. Akkadian is, in fact, a Semitic language (today classified as part of "Afro-Asiatic" which includes Arabia and North Africa). Sumerian does not seem to be related to any other language, although I have seen suggestions including Hungarian, Basque, Dravidian, and Georgian. The Akkadian speakers had enormous respect for the Sumerians, whom they succeeded, and they long used Sumerian as their official language. But we know next to nothing about Sumerian. In Sumer and Akkad there was a sense of time somewhat similar to that of the Indo-European language in that they had a past tense and a combined present and future tense -- actually a *perfect* and *imperfect* as in Arabic. But there is a notable difference in the point of view.

"... from the perspective of a Babylonian [Akkadian, Sumerian] the past lay before him or "faced him," while the future was conceived as lying behind him. ... the attention of Mesopotamian culture was directed towards the past and thus ultimately towards the origins of all existence."

-- Stefan Maul (1997) [\[note 15\]](#)

The sense of "the flow of time" is thus reversed in Sumerian and Akkadian from how we assume time to flow. The Mesopotamians "face the past," and are propelled backwards "into the future" -- a cognate of the word "back" in Sumerian, by the way. The beginnings were the only reality. All the innovations of civilization had been delivered by the Gods at the beginning of time. It allowed the Gods to retain their nearly three-thousand-year stranglehold on Mesopotamia.

... Egyptian texts

Old Egyptian is a distinctly African language (At one time called Hamitic), the language group of much of Northern Africa, and of the same family as Semitic Akkadian, Sumerian, and the Sub-Saharan region. But a conservatism even stronger than in Mesopotamia shows in their lack of any need to present narratives. Although there are some chronological narratives written quite late, there seem to be no early "narratives" such as we have in Sumer, Akkad, and Babylon starting after 2000 BC. There were tabulation of kings and annual

records, as elsewhere, dating to the 5th dynasty which records kings dating back to 3050 BC. But narratives seem to have developed only during the Middle Kingdom (ending in 1492 BC), and are quoted in inscriptions in tombs for a 200-year period early in the New Kingdom (after 1327 BC) -- in a quaintly "antique" language, that is, in the style of the Middle Kingdom.

Yet Egypt, which obviously and insistently looked to the past as the only reality -- the "First Time" -- also looked forward to the pharaoh's meeting with Re, the God of creation, as a completion of the pharaoh's earthly existence. I suspect reality was understood as a cycle of existence where time revolved, and perhaps continually repeated the past. Time did not move, as it does for us. However, it is uncertain what the worldview really was, or how it could be explained in terms familiar to us.

We know more about the Egyptian attitude towards words and names. Certainly they believed in the efficacy of ceremony and the force of words. From the spells used in the tombs, and from some later tales about the use of names, we sense that for the Egyptians *words by themselves* represented a powerful magic. The preparations for burial were entirely enfolded in magic, with absolute certainty of the results -- the continued life after death -- proven, as Jaynes explained, by the voices of the dead which continued to be heard.

What seems to be lacking in ancient Egypt is our understanding that a simile is not an identity. Books about Egypt which speak of this or that "representing" something or other, are mistakenly imposing our sense of metaphorical equivalence on their use of language. The pharaoh did not represent Horus, he *was* Horus. The multiple statues of the king in his funeral temple were not representations, they actually *were* the king -- all of them. The curious identity of images with what they "represented" is probably best demonstrated by the fact that in tombs the hieroglyphs which used images of birds or animals were faced away from the coffin (or had their legs removed graphically) so they could not advance on the coffin -- to keep the pharaoh's body safe from attack. Although this is totally foreign to us, the Egyptians had no room for metaphors.

... Chinese texts

China has a "saved" literature from 2300 BC to 700 BC, collated sometime after 500 BC. It is presented as factual, and the earliest record is a compilation, the *Annals of Shu* by Confucius, of odds and ends of surviving documents of the Shang dynasty and earlier. The first two sections of the Shu (covering dates back

to 2357 BC) are clearly noted as later recollections. These start with, for example, "Examining into antiquity, we find that... ." Only the remaining sections were written at the time of the events which are described. The Shu is history.

There are, in addition, "legendary histories" of China, which are not part of the coda of the Classics. These legends and mythologies were not committed to writing until a later date (after AD 200 or 400), when a story-telling literature had become well established.

The Chinese languages do not have a "tense" associated with verbs, although there are clear indications in the texts of "when" actions occur which is fully congruent with the great complexities of Indo-European verb declensions, such as the "future past perfect." The script is ideographic, which makes it useful over different languages and more stable over time than phonetic scripts, but it is open to questions of exact meaning. Additionally, the media was impermanent -- bamboo slivers, cloth, and paper. Thus the coda of older documents has required constant transcription and has been open to endless emendation. This has left no actual documents contemporaneous with historical events, only later compilations. Additionally the script was not unified until about 200 BC under the Chin, the same dynasty which purged China of nearly all books in 213 BC. Many of these were reconstructed from memory and hidden books -- but not until much later.

The other influence on the compilations after 500 BC was the humanist and realist philosophies of the Confucianists (Confucius, 551-479 BC) and the earlier Taoists (Lao-tse, 604-531 BC). Here we are in an era of classical philosophical development. We see efforts to tame and explain the world in terms of basic forces of nature (as the yin/yang and material elements), not unlike the contemporaneous Greek efforts to displace the Olympian Gods with rational thought. This had an impact on the records which are forwarded to us, for they have been cleaned up and emptied of mythical and legendary elements. The texts were edited to be in the service of the imperial aristocracy, and only examples of virtuous deeds have been retained. The Chou had already removed many of the ancient religious specifics. The Confucianists retained only the veneration of ancestors, plus a concept of heaven as the source of all authority. The Shu is history, however, and can be believed. It is not legend, it is fact. [\[note 16\]](#)

"It was philosophers of this period [the third dynasty, the Chou, 1027 to 221 BC] who first enunciated the doctrine of the 'mandate of heaven,' the notion that the ruler (the 'son of heaven') governed by divine right but that his dethronement would prove that he had lost the mandate. The doctrine explained and justified the demise of the two earlier dynasties and at the same time supported the legitimacy of present and future rulers."

-- www-chaos.umd.edu/history/

In part the proof of legitimacy for any dynasty was the creation of a compendium of the activities of the previous dynasty to demonstrate how the previous dynasty had gone awry, and thus lost the mandate to govern the world. Thus we have very detailed (although terse) historical records from after about 200 BC, and some from 700 BC.

... Mesoamerican texts

Mesoamerican written texts were almost totally destroyed by the Europeans, and only partially reconstituted after AD 1500. What we have are four Pre-Colonial codexes of an astrological nature, with no "historical" content except as might be inferred. There are a number of Colonial period narrative texts, but they tend to be jumpy -- they do not convey the sense of the progress of time as we would expect, despite the occurrences of finely detailed counts of years in some texts. The *Codex Chimalpopoca*, for example, proceeds to list ages into the past but it seems to be mostly number magic rather than historical fact. [\[note 17\]](#)

That the Mesoamerican narrative texts are formulaic, stylized, fantastical, and lack a cohesive narrative development may be due to the fact that the language structure does not require it. Mesoamerica presents a very large set of seemingly unrelated languages whose only structural affinities seem to be a highly developed sense of action (in verb use) and very weak tenses. Even the verb "to be" seems to be missing. But there is a strong sense of spatial relationships (topography), to be expected of a people who managed to make sense of the Tzolkin and Haab calendars as if they were spreadsheets.

Both the *Popol Vuh* and the *Annals of Cuahitlan* use a list of only "12 ancestors," which would amount to a time span of about 300 years, and use the movement of the tribe from a location of origin to a final location as the complete history of the recent world. It is the act of migration which is important, not the details, and the search for a new homeland is the only event of significance. The

"history" texts of other tribes in the same region of Central Mexico also use this formula of a migration. Descriptions of epochs before the migration and arrival in a new homeland tend to be spectacular -- and may be assumed to represent celestial events rather than tribal events.

We know from the Maya that time was held to be circular, or rather repetitive. The numeric values of dates -- every day was individually named and numbered, and imbedded in a deep series of cycles -- loom as large as events. In fact, all events were placed on a rotating platter of time, and fitted in with predictability. Human events occurred because they had happened before, and human destiny was to repeat them, with the requirement that they do so properly. This sense of repetition is the cognate of a causal model of reality which, although mostly unintelligible to us, is not different from the status of prophesy in Greek antiquity or Christianity. [\[note 18\]](#)

The Maya and Mesoamericans assumed the existence of a spirit world which ordered all things to happen at the right place in time in the material world. The Mesoamerican concept of reality involved action. All successes and failures of the physical world were caused by the actions of the Gods of a parallel spiritual world, and for the Maya (and presumably for all the peoples of Mesoamerica) the spiritual world was completely dependent on actions performed in the physical world. Man maintained the spiritual world which was in turn responsible for all causation in the material world. This was a circular arrangement where each world upheld the other and presented a chain of causation which could not be broken.

Suzanne D. Fisher, in an introduction to an English translation of Antonio Bolio's Spanish translation of the Maya *Chilam Balam*, writes, about the spiritual nature of the Maya:

"As provider of nourishment for divine beings, man has in his hands the existence of the world, which is created and maintained by the gods. In this sense neither men nor gods are perfect, since both are mutually dependent upon one another; both are insufficient unto themselves, but the dynamic harmony they constitute gives them sufficiency."

This philosophical outlook in Mesoamerica might explain the calendars with their unwieldy complexities of a dozen meshing cycles. Since the spiritual world remained essentially unknown, an almanac constituted the only clue as to what actions to take in the future. Once a small set of events was discovered to form a coincidence on the wheel of time, the concept of repeatability would yield an

understanding of the relationship between the two worlds. I suspect this first happened after 2349 BC when Venus struck four times at intervals of 52 solar years. This was taken very seriously by the Olmecs. Then when, after 1492 BC, Venus again appeared at a 52-year interval (but in a "Tun-year" interval), disaster was averted, not by chance it seemed, but by human intervention in the spiritual world. If the intervention involved bloodletting and human sacrifice, then the pattern was set. [\[note 19\]](#)

Such at least seems to be the world-view of the Maya, and by extension the world-view of all of Mesoamerica. The religious culture seems to be uniform up to about 600 BC, and over a large geographical area. There were apparently differing interpretations after 600 BC, but mostly consistent among the Maya.

Mesoamerican histories do not yield any information about the remote past which is sensibly ordered in time. The *Popol Vuh* groups similar actions together by location without regard to their sequence, making the book difficult to read for Westerners who expect a listing of events to follow each other chronologically. In the *Popol Vuh* the celestial ball-playing twins are repeating, with more success, the adventures of their twin fathers. It is the activity that counts, not the sequence. The *Popol Vuh* is discussed in a later chapter. Some books of the *Chilam Balam* are a notable exception to the lack of chronological order in narratives.

With Mesoamerican sources you have to search among strange descriptions and senseless concerns to find information coincident with Mesopotamian and Egyptian sources. There is plenty of solid information to be found, although nearly everything celebrates celestial events in 2349 BC and 865 BC, and much reads as magic run amok.

One exception is Book 10, the "Creation of the World," a section of the *Book Of Chilam Balam Of Chumayel*. "The Creation of the World" is very specific and recalls events dating back to 5800 BC without references to the metaphorical and allegorical twists of the Classical era. All except one event is dated correctly, that is, to the same dates as can be gleaned from Eastern Mediterranean sources, by Katun periods of 20 years. See the chapter "The Chilam Balam" for more details.

With some effort three additional sections can be read as accurate descriptions of events dating back to 2349 BC (the "third creation"), to circa 10,900 BC (the "survey of the world"), and possibly to 30,000 or 40,000 years before the present. See the chapter "The Olmec Record of the Past" for more details.

The *Chilam Balam* is also one of only three historical documents of the Maya, the others being the *Popol Vuh* and the engraved texts at Palenque of circa AD 700. Some of the text of Palenque points to events in the 24th century BC, which can be aligned with what we know from other sources.

Subjective Consciousness

What I have tried to show above is the variation in languages of different peoples (their grammars), which would have had a direct impact on their understanding of the world. Yet all of them used language to achieve *subjective consciousness* -- some earlier, some not until very late.

I have introduced the concept of *subjective consciousness* as culturally acquired in earlier text, and made reference to Julian Jaynes. Perhaps a very brief review of his work would be called for here.

I would urge anyone to read Jaynes, at a minimum in order to reach an understanding of *how* we think -- through metaphors, narratization, and spatial fantasizing -- and also how many judgments and solutions to problems are reasoned out without conscious awareness, that is, without what we would otherwise consider as "thinking." As noted by Jaynes, actual "conscious thinking" represents a thimbleful of the gross volume of all that we would consider as "thoughts."

Jaynes spends the first chapter of his book in telling what consciousness (*subjective consciousness*) is not. It is not a copy of what we experience; it is not the source of concepts; it is not needed for learning; and it is not necessary for thinking or reasoning. It is a difficult chapter, for much of what we hold dearly as the core of our innermost mentality is removed as support of consciousness.

... Basis of Consciousness

Language is an absolute prerequisite for *subjective consciousness*. Language is a system of naming which begets other names. It is ever-expansive, especially because the names for anything new are metaphorically related to things already known (and named).

But language is not enough for consciousness. After all, many animals use languages but can only conceive of the present tense and the near future. "Let's eat; let's play; let's screw."

*"Arf arf, arf arf arf,
the mailman is at the door,
he is going to kill us all."*

-- the dog

Here the dog, in her limited consciousness, is imagining the worst for the next few moments, as dogs have done for 100,000 years, be it marauding bears invading a campsite or evil mailmen tampering with the mailslot. But the imagined future for a dog does not extend much further ahead. We, on the other hand, can displace our "thinking" far beyond the present or into the past, reconstructing remembered or imagined spaces. But most importantly, our minds can race through many alternatives (of "who is at the door?") and make rapid evaluations -- all based on placing a substitute for ourselves into these alternative spaces.

But what are these mental "spaces?" The spaces of *subjective consciousness*, like language, are also created metaphorically. The general metaphor in use here is the *analog*, where every part of the "real world" is represented by a corresponding part in the model -- the mental space of *subjective consciousness*. It is like a map: the map reduces real world geography to marks on a paper, and the map in turn can be inspected to determine spatial relationships of the real world.

These spaces are constructed and "observed" by us, as if we are situated within them, and are thus inhabited by a copy of ourselves, an "analog I." You can even step back to see this "I" from some distance as an "analog me." So, to complete the definition of *subjective consciousness*, it requires the individual creation of an "analog I" in the expanded mind space. It is a facility so familiar to us that it difficult to think of yourself actually engaging in "subjective consciousness." "Subjective consciousness" is to be distinguished from "self-consciousness" or "self-awareness" which is observable in many animals.

Now we have *subjective consciousness* as we understand it: a focus on the specifics of a space or an action, seemingly located in the mind, specifically in the left hemisphere, and using an "I" which is able to move about through actualities and possibilities and evaluate alternative courses of action based on probable outcomes. And in these spaces we can shift time. We can determine future actions (as yet uncompleted) and also review past actions (making up the

elements of an operating space called "memory"). These evaluations are the level of "judgment" of which the verbal left brain is capable -- and at which it is very good.

Subjective consciousness is a focus which completely knits over the chasms between spatial locations (and times, also) in your mind -- to make it seamless to the point of not ever being able to be conscious of not being conscious. It reorganizes memories to make them seem like "looked at spaces," rather than actual sensory impressions. It forces you to "remember" anything you have done by taking an exterior spatial view of the activity. Even mathematical concepts are evaluated as spatial relationships. Jaynes claims there is no *subjective consciousness* except that which is represented by imagined spaces accompanied by the analogs of normal human actions -- we view, review, fit, weigh, and manipulate concepts, and all as actions. Time is also viewed spatially, as a continuous space of differing gradations. [\[note 20\]](#)

Subjective consciousness is a focus which only occasionally actually includes awareness of sensory experience. Not that you cannot shift your consciousness to something that catches your attention or become acutely aware of some part of your body -- but it is another (unconscious) part of the brain which tips you off, and then you shift to inhabit an "analog real space," moving your "analog I" to just behind the eyes. [\[note 21\]](#)

More importantly, and despite what you think occurs in your mind, *subjective consciousness* excludes the formation of concepts, so-called reasoning, and most judgments about physical objects and other people. There is no recollection, for example, of how you managed to drive your car home, and there is awareness, but no "thinking" involved in panic reactions. A later review of a newly constructed memory will add all the "reasoning" that determined your actions. All immediate "thinking" is done in the background, unconsciously, and by the right brain. You don't have any awareness of this until the conclusions are transmitted to the *subjective consciousness* of the left side. [\[note 22\]](#)

We only apply logic (as "reasoning") after the fact. Similarly, ask any artist where ideas come from -- they appear out of thin air. Ask Einstein where his concepts came from -- they came from no-where, usually while shaving. Einstein remarked that he shaved very carefully, for new ideas would pop into his mind and often startle him. This happened during other mundane activities also.

"I thought of that while riding my bike."
-- Albert Einstein

None of consciousness is anything like what a wolf does to chase down an elk, which is totally automatic, involves quick judgments and pre-guessing the moves of his prey, and who knows what else. If you or I did something as wild as that we would make all the right moves and never "be conscious" of them. What we *would* be conscious of is the overview of the real space we would be operating in (chasing an elk), but seen as if we were watching a movie, with ourselves simultaneously as actor and viewer.

Our "consciousness" could be elsewhere while we were chasing the elk. This condition is easily recognized in driving a car, where we make all the right adjustments to traffic, yet are "lost in thought" most of the time, lost that is, in the musings of our left-brain consciousness. We could be considering the opening notes of some piece of music. The car trip (or elk chase) would still be completed with the same efficiency -- our body would still make the correct decisions on how to move, where to turn, when to stop. And none of it would involve "thinking" as we commonly understand it.

The right brain can perform any "learned" activity blindly, like playing a piano, or driving a car. But it has trouble with new situations. Evaluating anything new is the task of *subjective consciousness*. In fact, *subjective consciousness* will hinder automatic activity. Try becoming aware of your fingers while typing. You will start making mistakes or even come to a halt. Become aware of someone looking at you while you are walking and your step will falter and your shoes will scuff the ground.

Development of Subjective Consciousness

What Jaynes next suggests is that *subjective consciousness* is learned by children at about age 7 or 8. It involves recognizing themselves as seen by others -- an "analog I" which is then internalized and placed into the space of the imagination. This analog can move around, perform actions, evaluate results, and can even vault through time. Parents constantly guide small children through numerous "what-if" situations and badger them with metaphorical constructions and reminders of remembered events, in effect *teaching them subjective consciousness*. Part of this is to teach to the child what others might be thinking. Since *subjective consciousness* is learned, it is cultural, not biological. And, Jaynes claims, because *subjective consciousness* is language-

based, it is easily learned by children as soon as they gain some facility with the expansion of language into metaphors. [\[note 23\]](#)

Subjective consciousness is deeply imbedded in the teaching of *subjective consciousness*. It is as if we could say that "the expression of subjective consciousness" is "the teaching of subjective consciousness." In this respect it is no different from our teaching of language skills.

Historically, Jaynes places the creation of the "internal I" after the development of written texts. It was also in response to a population expansion of the Middle East, because the other source of *subjective consciousness* is meeting new people -- not those familiar to us. For the most part we don't look at those familiar to us, nor do we question how they see us. Having to meet strangers causes you to wonder how they are seeing you and this results in the creation of an "analog I" as the way you imagine others see you. By reflection this then becomes the way you imagine yourself. [\[note 24\]](#)

The quality of *subjective consciousness* changes over time. Since it is cultural, there is no biological evolution involved, but *subjective consciousness* does evolve. Jaynes has documented the radical changes over the span of a few hundred years during the first millennium BC in Greece and the Levant, and noted the changes in South America over the span of a few months. The quality of *subjective consciousness* will be different from one person to another, although any social group with the same language and a common culture will for the most part share a common *subjective consciousness*.

Both the left and right hemisphere of the brain can understand speech. However, only the left brain can speak. The right brain specializes in seeing objects in context and has a sense of spatial relationships. The left brain concentrates on specific objects but is able to apprehend and order linear patterns, including, of course, speech and stories. [\[note 25\]](#)

That is a sort of shorthand, for the right hemisphere is also involved in speech -- operating the mouth and vocal cords. And the right brain can talk to the left brain in "voices" which are either heard silently in the consciousness of the left hemisphere, or pass right through and are spoken. You will see yourself doing this, for example, in greeting familiar people, but you will also find yourself mouthing off at the most inopportune moments.

The "voices" from the right brain are the remembered admonitions of your parents, and later, your superiors. It is your right brain that brings to mind such

things as "it is time to go," or "close the door." It is the right brain that always has the seemingly appropriate solutions, for it sees things in an overall familiar context and knows what to do in any situation which is not novel. It is also the more creative -- solutions to many "computable problems" come from the right.

The left brain concentrates on individual objects often to the total exclusion of context, but works easily in linear format -- like remembering phone numbers as one unit (which is but a larger decontextualized object), remembering songs and stories, and placing all the words of a sentence in the right order when you speak. The left is verbal, linear, and, because of the imagined spaces that can be examined, analytical. But in actuality it probably spends most of the time just meandering. The only conscious "thinking" we do is musing and reflecting -- always by means of imagined actions in imagined spaces. The right brain often gets annoyed with the left, and you will hear yourself muttering comments on your lack of directed thinking or your behavior.

Jaynes points to the left brain as the center of our consciousness: we are "aware" of left brain activities, but never of the right-brain. When the left brain gets into a bind on a problem, it is the right brain which often spits out an answer to the left-brain's consciousness -- "It popped into my mind."

In an age before written texts, or before reflection on the self as seen by others, the right brain "spoke" -- actual words were heard by the left side. We still hear these admonitions today, but mostly silently, "close the door." The wonderfully common-sense right hemisphere at times has to warn the left half of something, or get its attention. Jaynes suggests that using heard speech might have been a shorthand used by the right brain because the rear commissure connecting the two halves is only a few millimeters in diameter. By comparison, the olfactory commissure (which we do not have at all) in dogs and rodents is, as I mentioned, 10 times that diameter, thus 100 times the area. These animals integrate left and right brain functions surrounding smell much better than we integrate our verbal functions.

Our right to left communication today is often in visual concepts (I suspect), rather than words, although we still hear our mind "say" things -- quietly. It can be guaranteed that almost all statements of "correct behavior" which jump out of our mouth are initiated in the right brain. However, frequently they are inappropriate. The right brain does not deal with anything novel and cannot analyze the nuances of a new situation and peruse the alternate possibilities

which the conscious left brain can imagine. Often you will find yourself saying, "My first thought was ... but upon further consideration...."

... Instructions from God

Throughout the "Era of the Gods" and for 2000 years after, these instructions from the right brain were "heard" as the voices of the Gods: instructions on crop management, irrigation, and whatever else was appropriate for daily life of a community. There were many thousands of people in Mesopotamia and Egypt involved in agriculture, distribution, and trade. These were also the first large populations to do repetitive backbreaking communal tasks. Grain production requires that type of work, but it was done without reluctance because the Gods were held as real, superior, and absolute in power, and a slave mentality developed. Society was to continue as it was: with people sowing and reaping the fields of the Gods. Early inscriptions insist on this.

Jaynes points out the "authority" of spoken words, and he supplies extensive data from schizophrenics and commissureotomized patients. The right brain under these conditions issues commands, not solutions or suggestions. This is not different, he claims, from what was experienced by the people of Mesopotamia and Egypt up to about 1000 BC.

It is the development of written texts (claims Jaynes) which opened up a new vista: the possibility that words could be independent of a person and thus "voice" could be abstracted into silence. This is an amazing concept which filtered down into society over the next few hundred years as parents modeled such silent consciousness to children. And with that the voices disappeared. [\[note 26\]](#)

... Differences

As examples of the differences in consciousness of vastly different people, compare the war edicts and bragging of the Assyrians with the contemporaneous "Spring and Autumn" Wars being waged in China. The wars were no different -- and the same example of the warring Gods stood before both groups in the skies overhead. But the attitudes were completely different. The Assyrians were bellicose and cruel and insisted on devastating the peoples they had conquered -- always over matters of tribute. [\[note 27\]](#)

"Throughout the Assyrian war records runs the monotonous mantra. 'I destroyed, I devastated. I burned with fire'. No hint of mercy or pity here; but ... repetitive and total conquest. Assyria, often likened to the Nazis, was a thoroughgoing military nation, highly disciplined. Her characteristics were destructive invasion, deportation and taxation."

-- Originally from CIAS at specialtyinterests.net.

The Chinese states went to war over the same sort of resources, but the tactics of war and settlements took a different course. By 400 BC there was already a conscious effort to view tactics philosophically and write about them, as follows. The Chinese in fact have never favored warfare.

"In general, the method of employing the military is this: Preserving the [enemy's] state capital is best, destroying their state capital is second best. Preserving their army is best, destroying their army is second best. ... attaining one hundred victories in one hundred battles is not the pinnacle of excellence. Subjugating the enemy's army without fighting is the true pinnacle of excellence."

-- Sun Tzu, opening lines *The Art of War* (circa 400 BC).

[\[note 28\]](#)

... Points of Disagreement

For many people language is so obviously and unquestionably innate that the book by Jaynes will make absolutely no sense at all. And without the idea that language could have evolved culturally, you cannot understand the idea of a cultural evolution of *subjective consciousness*. Growing up bilingual helps, for it provides some perspective. But most of us fail to examine even our own "word-thinking" and the language of others. Another contributing factor is the incredible chauvinism we have adopted to separate ourselves both from animals and from the past.

Other people will dismiss Jaynes over the details of the *Iliad*, which he uses as his start-up example of a change in consciousness. The objections involve arguments about when the *Iliad* was written, whether Troy existed at all, and how a group of Greek pirates could possibly wage a ten-year war. Also, since Jaynes is using 1100 BC for the Trojan war (a date first suggested by Herodotus), he is forced to assume that the transmission of details of the epic

was via some sort of semi-conscious bards. This follows a theory of "bardic transmission" dating from studies of Balkan epic poetry earlier in the 20th century, but the exact transmission from bard to bard has since been disproven. [\[note 29\]](#)

I have other differences with Jaynes myself. I object to Jaynes's insistence on the need for kings and leaders. It seems to be a peculiarly Western outlook that you cannot have a village of 200 people without some sort of control, much less a city of 10,000. Often he slips into generalization like "the mechanism of social control." Archaeologically, it appears that there were no leaders, kings, or pharaohs in control before 3100 BC. However, we do not need to look among antique or primitive societies alone for egalitarian societies. The precursor of the Dutch Republic, a collection of city-states, managed adequately without promoting anyone to absolute power for several hundred years. Humans will cooperate -- it is natural for us as a gregarious species, although it is also natural to demand leadership in times of social stress, as happened after 3100 BC. The idea of "individuality," which today makes us almost perversely independent and uncooperative, is a very late concept in Europe, probably dating to well after the 16th or 17th century AD. [\[note 30\]](#)

Jaynes uses the idea of "social control" to suggest how the voices of the Gods -- which most definitely occurred -- might have started and been located in the right hemisphere of the brain. He resorts to the suggestion of an "evolution by natural selection as a method of social control." But this is an unclear concept. I would suggest that "natural selection" is not an issue, primarily because the need for "social control" is not a fact.

I would suggest, instead, that the structure of the mammalian brain is already lateralized for spatial and linear functionality, respectively in the right and left hemisphere. This is in itself enough to naturally place speech functions -- which require linear order -- on the left. In addition, the speech functions are fluidly relocatable, which I think would argue against an evolutionary mandate. Some people have speech functions located on the right, as with those who suffered left hemisphere damage at an early age, and with some left-handed people.

What Jaynes, publishing in 1979, was not aware of was the research by Talbott in 1980, and the subsequent expansion on this over the next twenty years, showing the enormous cultural influence of the planets standing in the sky close to Earth, which were universally understood as the Gods who directed all human activities -- the very Gods whose voices Jaynes places in the right hemisphere.

Jaynes instead uses marked graves in the Neolithic (from 7000 BC), the rather occasional extravagant graves of "kings," and the display of the skulls of the dead in homes (and later temple structures) in various locations in the Middle East, to suggest that the hallucinating voices of the dead continued to be heard. In Egypt during historic times it was certainly held true that the voice of the dead pharaoh remained to be heard to advise and direct. But this period follows directly on the prehistoric era when, for a thousand years or more, mankind was confronted by the image of a large head looming constantly above the north horizon.

We have no idea of the function of all the variously displayed and decorated skulls. In the era before 3100 BC, the skulls might have been honored dead relatives, parents, or they might have been enemies or sacrificial victims. The images in the sky after 4077 BC must have had an enormous influence on humans, and humans as ever imitated what they saw. The exact measure of this is not revealed until after the head in the sky had disappeared. If anything induced the "voices of the gods" to be heard via the rear commissure between the right hemisphere and the left, it would have been this constant thousand-year image of a face in the sky.

... advantages

We could ask, What is the advantage of subjective consciousness? Obviously, in the remote past, it was used to get through change, whether cataclysmic change or the need to live through social change. But, we could ask, what is the utility in today's milieu?

From my perspective, *subjective consciousness* allows traveling through time, visiting distant places, and imagining cosmic relationships. It also allows navigating the complexities of relationships, imagining technology not yet in existence, and selling products to those who do not need them.

We should also not neglect the possibility that the *subjective consciousness* of the left brain aids the normal background processes engaged in by the right brain. Certainly we know that the right brain knows whatever the left brain knows, and is able to work out solutions to questions that the left brain just cannot handle. Einstein's care in shaving is an example of the startling revelations which can come to consciousness as if out of nowhere. Einstein's revelations certainly were not limited to parental admonitions.

I suspect that a salesman who has gone through attempts to enter the mind of his customers will have offered all of these scenarios to his right brain. They will be stored somewhere and can be accessed as needed. The best approach for a particular customer will be selected and presented to *subjective consciousness* as if out of nowhere -- based on an almost instantaneous analysis of the customer's psychological state. Considering the speed with which the right brain can operate, this certainly is a more likely process than having to wait for *subjective consciousness* to again trip through a number of imagined scenarios. Everyday speech and the creations of poets and artists must be generated like this. I also suspect that the right brain today, rather than using speech to alert the subjective consciousness, as was traditionally done, uses images to a greater degree. But of course how *subjective consciousness* operates, and what its particular qualities are, depends completely on how a person is brought up in a particular social context, including the qualities of a particular language and grammar. We don't all think alike.

Children

Lastly, let me add some notes on children and *subjective consciousness*. Children learn language from adults who, on meeting a child, always test the level of the child's language abilities and then switch to a "caretaker language" to continue conversing. A "caretaker language" is grammatically slightly advanced beyond the level of the child. We have all learned this teaching technique, and we use it automatically with children. People who "baby-talk" to children are those who have made no effort to gauge the child's current abilities. [\[note 31\]](#)

What Jaynes suggests is that *subjective consciousness* is learned similarly to the way in which language is learned -- parents teach children *subjective consciousness*, and have done so actively since about 1000 BC. In the interaction with parents (*subjectively conscious* parents) children are constantly confronted with snippets of real and imaginary situations which, over the course of years of exposure, and graded to their abilities, suggest the possibilities of imagining what they might do under a proposed situations. What is always suggested to the child is what actions they might take -- because all "thinking" in the mind involves an analog of actions in the real world. Thus both the analogical "spaces" and the actions to be performed in them are constantly put forth to children, and this is done by us with the same lack of awareness that we use with a graded caretaker language. This process also forces upon a child the recognition that others (mainly their parents) see them in their mind. We often

identify the age of seven or eight as the first glimmer of "self-consciousness" in children. It is, in actuality, the first glimmer of their awareness of *our* consciousness. [\[note 32\]](#)

It is instructive to observe children 4 to 7 years old, although the state of *subjective consciousness* depends very much on their verbal abilities and the interaction they have with their parents and other adults. There seems to be a difference also between girls and boys, perhaps because girls (in our society) are more engaged in person to person relationships by their mothers. Pre-conscious children have recognizable behavior patterns which might be reflected in the following to various degrees. The following notes are my observations. (They are not from Jaynes.)

- They lack any clear memory of the past except for events they have been told about and some critical events which may have been reenacted mentally. Pre-language "memories" of events are almost entirely absent in everyone, for most memories are "constructed" by a subjective consciousness. (As I have pointed out, this is not true of spatial memories.) This obviously also goes for events before the age of 7 or 8.
- They show little of the self-consciousness which would result in being able to see yourself from an exterior perspective -- in effect as being seen by others. Children are self-aware, as all mammals are, but are unable to displace this to an exterior perspective. Their behavior is simply regulated by parental admonitions and the parental controls of shame, guilt, or embarrassment.
- The imagination of a child, as exercised in play, is often unbounded by reality and often lacks a measure of time. Importantly, the play space often lacks themselves as an involved actor. Older children will often "correct" the play fantasies of younger children, in effect mimicking parental teaching of *subjective consciousness*.
- They are often very opinionated, blurting out the opinions of their parents in lieu of any original "thinking" on a subject, a trait which often carries far into adulthood. Original thoughts on a particular subject would involve being able to create imagined spaces for action in the mind and walking an "analog I" through these spaces to evaluate alternative outcomes.
- They will interrupt adult conversations with non sequiturs, for there is no ability to narratize the present as a mental space in which they can fit themselves and observe the (real) space as if from afar (that is, in the

mind), and to narratize into that mental space what others might hear or might be thinking at the moment.

- They often have hopelessly inadequate concepts of space and travel time ("Are we there yet?"). Children experience a dilation of real time which adults do not notice. Children (young children, especially) do not have access to the musings of *subjective consciousness*, with which adults fill real time to replace the second-by-second experience of actual time.

Yet children are fully functional. They learn to read and do math. They learn skills. They learn how things work, and how to interact with others. They can create and appreciate jokes. They know who they are. But the guide to their actions is the voices of parental admonitions and attitudes which were heard, remembered, and recalled. It is, in fact, the right hemisphere which does this for any predictable situation.

Endnotes

Note 1 --

Paraphrased by Edward T. Hall, in *Beyond Culture* (1976), from S. L. Washburn, "Primate Field Studies and Social Science," in Nader and Marettzki, *Cultural Illness and Health* (1973). He is talking about primate young (as an area of study), but this could be extended to adults also. Adults also learn from their peers.

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Note 2 --

That is not entirely true. Pointer dogs point with their nose and tail, and the young will learn from older dogs. I have only taught one Rottweiler dog to follow the direction of a human's pointed finger.

Humans understand and answer questions by 18 months.

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Note 3 --

The following are from an Internet source which I have not tracked. Obviously the original author has just split up mental functions by opposing approaches, which, however, has little to do with what seen to be happening in actuality. The

qualities listed below are almost all incorrectly assigned, the case being that either the two are reversed from inferences we can make, or both qualities belong on one side. I'll note the obvious reversals below (marked "rev"), followed by some comments.

Consciousness is located in the verbal left hemisphere, where speech generation is also found, and operates the right hand. The silent right hemisphere is mostly incapable of speech although it can understand language. It operates the left hand. But the silent right is capable of close reasoning, data evaluation, and rote endeavors. It can type without thinking, operate a car, play music, unlock the door. There are 15 items listed at the original; I'll go through these by relisting them as follows:

	LEFT Verbal BRAIN FUNCTIONS	RIGHT Silent BRAIN FUNCTIONS
ONS		
(1)	uses logic	uses feeling
(rev)		
(2)	detail oriented	"big picture" oriented
(?)		

(1), (2): **uses logic/ uses feeling; and detail oriented/ "big picture" oriented** -- Animal studies indicate that the right hemisphere, not the conscious verbal left, uses "logic," is "detail oriented," and bases decisions on "fact" (see below). "Detail oriented" is, however, also a left brain function since consciousness can only focus on one thing at a time.

	LEFT Verbal BRAIN FUNCTIONS	RIGHT Silent BRAIN FUNCTIONS
ONS		
(3)	facts rule	imagination rules
(rev)		

(3): **facts rule/ imagination rules** -- This is certainly reversed. The verbal left brain operates entirely in the realm of the imagination. The right does not. The right operates on facts.

	LEFT Verbal BRAIN FUNCTIONS	RIGHT Silent BRAIN FUNCTIONS
ONS		
(4)	words and language	symbols and images
(?)		

(4): **words and language/ symbols and images** -- The verbal left brain is the only one that can speak, but certainly the right brain also understands speech. The status of "symbols and images" is ambiguous, since some of the back communication of the right brain may be in imagery, but it can also be in words that pop into your head (and at times into your mouth), as it can be in sweeping feelings. "Symbols" I am not clear on. Symbols are abstractions, and thus probably in the domain of the left brain, which uses abstractions to jump through mental spaces which would be too time consuming to traverse in detail.

	LEFT Verbal BRAIN FUNCTIONS	RIGHT Silent BRAIN FUNCTIONS
ONS		
(5)	present and past	present and future
(rev)		

(5): **present and past/ present and future** -- It is the future which is accessed by the conscious left brain, as well as the past, including the imagined past or future -- especially this last. The silent right brain deals with the present, and with the past only in that current action is based on what was learned in the (real) past.

	LEFT Verbal BRAIN FUNCTIONS	RIGHT Silent BRAIN FUNCTIONS
ONS		
(6)	math and science	philosophy & religion
(?)		

(6): **math and science/ philosophy & religion** -- Math and science are created and manipulated in the space of the imagination, and thus represent left brain activities. But philosophy probably belongs there also. Religion (but not theology), in that it is unsupported by any reason, belongs on the right as accepted dogma. This suggests that science, if it is learned as handed-down dogma, also is a function of the right brain, and exhibits itself in the manner of unreasoned value judgments no different from what has been learned to be acceptable in social exchanges, or as religion.

	LEFT Verbal BRAIN FUNCTIONS	RIGHT Silent BRAIN FUNCTIONS
ONS		
(7)	can comprehend	can "get it" (meaning)
(?)		
..		
(9)	acknowledges	appreciates
(?)		

(7), (9): **can comprehend/ can "get it";** and **acknowledges/ appreciates** -- I'm not sure what to do with these. All of these are mental judgments, so that I would probably attribute them to the operation of the conscious left brain. The right brain is not judgmental, nor does it form meta-theories about knowledge. Not, at least, without your asking it to do so.

	LEFT Verbal BRAIN FUNCTIONS	RIGHT Silent BRAIN FUNCTIONS
ONS		
(8)	knowing	believing
(?)		

(8): **knowing/ believing;** -- knowledge is securely lodged in the verbal left hemisphere in that an analysis has been performed which supposedly lines up the elements of a syllogism to support the "facts." But almost always knowledge is generated by the silent right brain. Belief is a matter of conviction and has no more status than fantasy.

	LEFT Verbal BRAIN FUNCTIONS	RIGHT Silent BRAIN FUNCTIONS
ONS		
(10)	order/pattern perception	spatial perception
(no)		

(10): **order, pattern perception/ spatial perception** -- The verbal left brain deals with order, as in the word order of speech, and this could be extended, along with pattern recognition, to the mental arrangement of external objects or events, although, I should warn, this is dependent on the grammar in use. That would by default assign "spatial perception" to the silent right brain, but this might be an inference based on the absolutely amazing speed with which familiar situations are evaluated, plus the ability to review (over a much longer extent of time) all the relevant data of a field of study.

	LEFT Verbal BRAIN FUNCTIONS	RIGHT Silent BRAIN FUNCTIONS
ONS		
(11)	knows object name	knows object function

(11): **knows object name/ knows object function** -- Probably correct, in that it has been repeatedly shown that the silent right brain has difficulty naming objects, although it will recognize their use.

	LEFT Verbal BRAIN FUNCTIONS	RIGHT Silent BRAIN FUNCTIONS
ONS		
(12)	reality based	fantasy based
(rev)		

(12): **reality based/ fantasy based** -- This is exactly reversed. It is the conscious left brain which deals in fantasies, whereas the right brain remains rooted in reality. But because it bases actions on learned situations of the past, the right brain becomes deadlocked in new or unfamiliar situations, whereas the conscious left brain can work through possible solutions of how to handle new situations.

	LEFT Verbal BRAIN FUNCTIONS	RIGHT Silent BRAIN FUNCTIONS
ONS		
(13)	forms strategies	presents possibilities
(no)		

(13): **forms strategies/ presents possibilities** -- Both of these are functions of the conscious left brain. The right brain does not deal with options.

	LEFT Verbal BRAIN FUNCTIONS	RIGHT Silent BRAIN FUNCTIONS
ONS		
(14)	practical	impetuous
(rev)		

(14): **practical/ impetuous** -- This is also reversed. The active imagination -- what I have elsewhere identified as *subjective consciousness* -- makes the conscious verbal left brain "impetuous" while the right brain remains "practical." But because of the speed with which the right brain arrives at a course of action, it might be inferred that it is acting impetuously.

	LEFT Verbal BRAIN FUNCTIONS	RIGHT Silent BRAIN FUNCTIONS
ONS		
(15)	safe	risk taking
(rev)		

(15): **safe/ risk taking** -- Again, the applications are reversed. The conscious left brain takes risks often based on flimsy theories of how things work. The theorizing (tracking possibilities) is so much part of what we perceive as "consciousness" that we just cannot ignore it. We tend to think of these theories as "reasoning" and value them as the highest order of mental activity. This is

how gamblers lose, and how bad investments are made.

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Note 4 --

The quoted text is from an article adapted from the book which appeared in *Scientific American Mind*, June/July 2008, "Spheres of Influence" by Michael Gazzaniga.

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Note 5 --

Our main distinction as a species is that we are strongly neotenized, which doubles our lifespan and flattens our face. Cats are also neotenized, living twice as long as a cat-sized mammal normally would. We also lost our fur, our tail, and the ability to produce vitamin C, but have gained our longevity for the sake of our oversized and helpless babies, and to allow for their long period of learning. The other outstanding difference -- bipedalism -- is certainly common among birds, marsupials, and dinosaurs. What we hold as "racial" distinctions (body size, hair, skin color, nose and eye shapes) have generally been held to be the result of 30,000 years of environmental isolation. For paleontologists only the inside slope of the front teeth is a clear racial distinction.

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Note 6 --

Steven Mithen, in *The Singing Neanderthals* (2006), attempts to make a case for the evolution of language based in part on music and dance. The book involves a lot of guesswork and unfounded suppositions about prior hominids in an attempt to build the case for a slow evolution from natural selection. There is no "slow evolution."

Jaynes also attempted to make a case for how language might have developed, but too specific to Cro-Magnon, guesses about the effect of the European climate, and "selective pressures" to make much sense.

Alfred de Grazia, I feel, is closer in observing:

"Here is an area where evolutionary thought is especially self-contradictory and, consequently, slippery and evasive. It can only get from one small change to the next but cannot get from the beginning to the end;

it can explain some intra-species changes, like horse-breeding and the Beltsville turkey, but it cannot explain a major development. No known mechanism directs a long string of slight modifications in the germ plasm. Even if we were to concede that the jump from hominid to human were only apparently large but was biologically small, human genesis would admittedly be a hologenetic occurrence; when it occurred, hominid life changed drastically; it speciated."

-- *Homo Schizo, Human and Cultural Hologenesis* (1983?)

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Note 7 --

About gestures, Edward Sapir, in 1972 wrote: "... we respond to gestures with an extreme alertness and, one might almost say, in accordance with an elaborate and secret code that is written nowhere, known by none, and understood by all." Quoted by Tim Friend in *Animal Talk* (2004).

About dogs, R.A. Fonda, in "Speculation on speciation" originally at rafonda.com, writes:

"In East Asia, by a hundred thousand years ago, casual scavenging of predator kills had developed into systematic exploitation of the wolves' capacity to pursue fleet game. That led to domestication of dogs, who were, themselves, differentiated from wolves by neoteny. They matured into an amenable creature that could pattern on humans as pack-alphas, and behave with 'puppyish' submission even when mature."

Fonda is perhaps too glib about dog behavior. Domesticated dogs are still carnivores and wild animals, and they are certainly not neotenized. Their submission is not all that puppyish, but only as it benefits their own pack-member priorities. Their benefit to humans comes from their carnivore brains which are able to almost instantaneously reach conclusions based on integrating many diverse small environmental cues, and as a result of great value in hunting. Dogs can also "read" humans with amazing proficiency as a result. But most behavior is still all about search, chase, bite, rip, and eat. Don't get your hand caught in that sequence.

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Note 8 --

From various considerations, John A. Halloran thinks that the Sumerian language was invented as a game by women, around 10,000 BC. That would place the genesis of language at the leading edge of the first settlements dedicated to mixed gathering/hunting and farming. He identifies some base words with earlier building structures in Iran and at Catal Huyuk. See [\[http://www.sumerian.org/prot-sum.htm\]](http://www.sumerian.org/prot-sum.htm)
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Note 9 --

Halloran has suggested that the Indo-European language group is a secondary effort, that is, a language based on the active implementation of the "concept" of a language, whereas Sumerian shows the signs of a language invented from meanings associated with the voicing of vowels and consonants. In his study of Sumerian, he has shown that the basic words of that language originate from the meaning inherent in the sounds and the shapes formed by the mouth and tongue. Sumerian thus may be an original "proto-language."

"Biological forms must be descended from ancestral forms. This cannot be true for languages for an infinite time depth. The method of glottochronology must break down when it reaches the event horizon at which a population went from nonspeaking to speaking. In some cases, just the concept of speech will have inspired a population to invent their own language. In other cases, a population will have built their new language upon a repertoire of elements taken from an existing language."

-- John A. Halloran, at [\[http://www.sumerian.org/prot-sum.htm\]](http://www.sumerian.org/prot-sum.htm)

Studies of the basic meaning of words of Indo-European languages show little or no relationship to the physiological content of the mouthed sounds. It would be suspected that the prototype Indo-European language was created much like Northern European alphabets, in that they were derived from the *concept* of writing, and not in imitation of Mediterranean alphabets. The glyphs used by the Romans or Greeks, like "alpha, beta, gamma, delta," originated from "ox, house, camel, river mouth" -- named objects signifying the sound of the letter. The Northern European alphabets do not show a derivation of glyphs from named objects.

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Note 10 --

There are some Cro-Magnon-like developments at a much earlier period (70,000 ya) in South Africa. They are typically Cro-Magnon-like in that they seem to represent short-lived local fashions without any notable utility.

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Note 11 --

Language is passed with ease to people who do not speak because the whole structure of language is imbedded in the task of teaching language. Without this our children would only learn with difficulty.

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Note 12 --

Woven fabric dates from 25,000 BC (Germany). Colorants used by Cro-Magnon in decorating caves were most likely also used as makeup. Baskets derive from cording, and can be made waterproof by lining them with leather-hard clay. That is one step away from fired pottery.

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Note 13 --

The "migration" of Cro-Magnon into Europe, or anywhere else, has not been firmly established, in that, for example, the expanded lithic industry does not start at some one location to spread out from there. Different aspects of the "cultural package" of the Cro-Magnon appear at diverse locations, representing, as James Shreeve writes in *The Neanderthal Enigma* (1995), "a complicated mosaic of mini-explosions that resemble one big explosion only when you stand back and take a long look at the whole."

This becomes an argument against the biological genesis of language, if we at least can accept that the use of language lies at the base of the cultural explosion in the Upper Paleolithic, for it would assume that humans all over the planet "evolved" nearly simultaneously. Of course a thousand-year lag looks instantaneous from our perspective.

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Note 14 --

This presumes that North America was invaded from Northern Asia. But it is clear that most of North America was populated from South America via the

Caribbean, originally some 30,000 years ago, and again after 9000 BC. The west coast regions may indeed have been populated from Asia also after that date. We have no records, since the general rise of the oceans after the glaciers melted has destroyed evidence of coastal settlements.

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Note 15 --

"In our own modern conceptual world, the opposite seems to be self-evident: we look into the future, while the past lies behind us. Continuing with this line of thought, we might say that while we proceed along a temporal axis "headed towards the future," the Mesopotamians, although they also moved on a temporal axis in the direction of the future, did so with their gaze directed towards the past. The Mesopotamians proceeded, so to speak, "with their backs forward," that is, facing backwards into the future."

-- From Stefan Maul *Die altorientalische Hauptstadt -- Abbild und Nabel der Welt* (1997) translated by Thomas Lampert

See also Nicholas Osler, *Empires of the Word* (2005), for more details on Sumerian, as determined from Akkadian sources.

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Note 16 --

Do not confuse the insistence of the *Annals of Shu* on the existence of Yao and Shun with "legend," for they are not identified as "Emperors" (or "legendary emperors" as western commentators would have it), but are clearly identified as "Gods" -- a perfectly legitimate term for the two planetary apparitions. See James Legge, translator of *The Sacred Books of the East, The Shu* (volume 3) (1879). Legge's translation and notes still stand as a classic.

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Note 17 --

The Mesoamerican *Annals of Cuahitlan* claims we are living in the 5th age with no reference to the start of the current age. The first four ages are 676, 364, 312, and 52 years long. From what we know we could place the end of the 4th age in 1440 BC. Together that places the first creation in 2896 BC, or about 200 years after 3100 BC, only about a hundred years later than the recovery period for

other people after the flood at the end of the "Era of the Gods." Interestingly, the first age ends in 2168 -- about the time of the demise of the Old Kingdom of Egypt.

This may be coincidence, however, since the ages are obviously numerologically constructed and based on the later importance of the numbers 52 and 13. The second and third ages together equal the length of the first age, 676 years, with 52 as the difference between the two (which is the length of the fourth age). All the numbers are multiples of 13.

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Note 18 --

Ralph L. Roys, in *The Book Of Chilam Balam of Chumayel* (1933) writes:

"A Katun of the same name recurred after approximately 256 years, consequently at the end of that time history was expected to repeat itself. The events recounted in the Maya Chronicles found in the Mani, Tizimin and Chumayel manuscripts [The Books of the Chilam Balam] offer excellent grounds for believing that this belief was so strong at times as to actually influence the course of history. A surprisingly large proportion of the important upheavals in Maya history appear to have occurred in some Katun named either 4 Ahau or 8 Ahau."

In a footnote he adds:

"Katun 8 Ahau recurred approximately every 256 years, and for a thousand years every time a Katun of this name occurred, the Itzá were driven from their homes, no matter where they were living at the time. Late in the Seventh Century A.D. they were expelled from Chichen Itzá after their first occupation of that city. In the middle of the Ninth Century they were driven out of Chakanputun. At the end of the Twelfth Century they were again driven from Chichen Itza by Hunac Ceel. About the middle of the Fifteenth Century Mayapan was sacked and destroyed; and strangely enough it was again in a Katun 8 Ahau at the end of the Seventeenth Century that the Spaniards conquered the last Itza stronghold at Tayasal, which was the end of this remarkable nation."

Schele and Freidel (in *A Forest of Kings*) similarly relate, about the meek acceptance of Christianity by Can-Elk, the last of the Maya kings, in AD 1697:

"This fatalism was part of the legacy of the Classic-period attitude toward history and its relationship to cyclic time and supernatural causality. Classic-period scribes emphasized the connectedness among the actions of their living kings, the actions of their ancestors in the historical and legendary past, and the actions of gods in the mythological past. ... The result of this type of thinking, transformed by the exigencies of the Collapse and then the Conquest, became predictive history.

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Note 19 --

The 52-year interval after 2349 BC was in solar years, which were "Tun years" in the records of the past. The interval after 1492 BC was also 52 "Tun years" on the Tzolkin calendar, but represented an interval of 50 solar years. See Appendix B, "The Celestial Mechanics," the "52-year cycle." I discuss the Mesoamerican calendar in the chapter "The Maya Calendar."

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Note 20 --

Most of our memories are constructed, or rather reconstructed, by us if they involve action, for we fill them out with the appropriate details, to the point of making up dialogues. Which is why memories reported as evidence in courts are suspect. Of course we do have other memories too. You will probably remember the layout of your house at age three, even though you do not remember a single event or action from that age. All animals are capable of memories involving the geography of their environment, and often with astounding accuracy.

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Note 21 --

The shift of attention is managed by the "reticular formation" (Jaynes) or the "amygdala" (Goleman) or some other primitive element located at the base of the brain, with connections to sensory and motor areas of the brain and the spinal cord, which has the purpose of awakening certain parts of the nervous system while suppressing others on sensing external stimulations which require attention. How this is judged is beyond me.

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Note 22 --

Hollis Frampton, in *Circles of Confusion* (1983), reports on the interview of the holder of the world's land speed record at Bonneville Salt Flats, Craig Breedlove, after he had lost his brakes and parachutes at the end of a test run -- flying off the end of the course at 620 miles per hour (1000 km per hour).

"The car went out of control, sheared off a number of telephone poles, topped a small rise, turned upside down, flew through the air, and landed in a salt pond."

Breedlove survived without a scratch. Frampton listened to a taped interview started immediately after the wreck, and wrote:

"Breedlove delivers a connected account of what he thought and did during a period of 8.7 seconds. In the course of the interview, Breedlove everywhere gives evidence of condensing, of curtailing; not wishing to bore anyone, he is doing his polite best to make a long story short."

Frampton notes that the tape ran one hour and 35 minutes, a 650 fold expansion of experienced time.

A similar incident is recollected by Walter Shapiro, in "The Washington Post Magazine" (November 9, 1980), about a Navy test pilot, Major Russ Stromberg, whose plane lost power on takeoff from an aircraft carrier. In 8 seconds before ejecting he tested the controls, judged the consequences, and determined when to eject without either landing on the deck or at the site of the crash. It took him 45 minutes to describe the 8 seconds. (cited by Edward T. Hall, in *The Dance of Life*, 1983.)

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Note 23 --

There is obviously more to learning "what others might be thinking" than what is suggested here. Sarah Blaffer Hrdy writes:

"The reason our species has managed to survive and proliferate to the extent that 6 billion people currently occupy the planet has to do with how readily we can learn to cooperate when we want to. And our capacity for empathy is one of the things that made us good at doing that."

"Predators from gopher snakes to lions have to be able to anticipate where their quarry will dart. Chimps and gorillas can figure out what another

individual is likely to know or not know. But compared with that of humans, this capacity to entertain the psychological perspective of other individuals is crude."

-- "Mothers and Others," *Natural History* (2001).

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Note 24 --

The reflections occur in everyday conversations. It is not unusual to hear someone say, "I did not want you to think that I thought you would think that I thought ... so and so." Convolved on close analysis, but perfectly understandable to the parties involved.

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Note 25 --

In referring to the "left" and "right" brain we are talking primarily about the speech centers -- Broca's area and Wernicke's area. The abilities of the right and left hemisphere listed in the text are abbreviated for the sake of this text. To gain an appreciation for the incomprehensible complexity of mental functions, see the classic book by Oliver Sacks *The Man who Mistook his Wife for his Hat* (1970) which deals with dysfunctions of the right hemisphere. These right hemisphere abnormalities are not noticed by the subjects, whereas left hemisphere dysfunctions are experienced and can be described by patients.

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Note 26 --

"Modeled such silent consciousness," is a sort of sudden jump in the narrative on my part. It may have come later and taken more time.

At the close of the age of the prophets, the time from Elijah to Zechariah, Bible texts start including admonitions against hearing voices and talking in tongues. That is after 620 BC.

The Inca seemed to have learned in only a few months.

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Note 27 --

See also the writings of Edward T. Hall and any number of academics (and non-academics) who have taken up these topics. The principles first expounded by Hall are today used in international marketing.

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Note 28 --

Sun Tzu *The Art of War*, translated by Ralph Sawyer (1994). Admittedly, the texts, as they have come down to us, were edited and collated as late as circa AD 1000.

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Note 29 --

I am more inclined to view the *Iliad* as fiction purposely crafted "in the style of" an earlier period or a lost earlier literature, or possibly carried forward from a remote time, not as history, which is a substrate added over time, but as a tragedy. The *Iliad* spans only some two months, and is not about a war, but about the effects of the anger of Achilles and his reluctance to initiate action.

There is no archaeological evidence for an extended war at Troy and the city has not been located or identified. The hill at Hisarlik is too small to serve as the citadel of Troy, it is not in sight of the sea, and was repeatedly destroyed by natural disasters, and at the wrong times. But by the sixth century BC, as the Asiatic Greeks faced their defeat by the Persians, the *Iliad* became the favored epic of the heroic forebears of the conquered Greeks. Everyone believed that the war had happened. Greeks on both sides of the Aegean traced their lineage to the heroes of the *Iliad*.

There is not a single mention of texts in the *Iliad*, even though these were already in wide use in Mycenaean Greece (supposedly by 1200 BC, and certainly by 900 BC). The tradition in antiquity, that Homer was blind and therefore could not write, points to a purposeful falsification also, and lends an aura of authenticity to the epic.

But the final composition of the *Iliad* has to be placed in the 7th century BC when the Greeks possess an alphabet. The poem selectively picks details from an imagined past. The battle tactics are wrong, as is the armor, and the funeral customs are foreign. There are anachronistic references to the Olympic Games, and the Gods are mocked -- all suggesting a composition after perhaps 650 BC.

If the *Iliad* had achieved status as a classic at an earlier time, the vocabulary should have been recognized as archaic by the Greeks of the third century BC, since language conforms to classics. Alfred de Grazia suggests that the "heroic diction" was a purposeful amalgam of dialects of a late date.

Jaynes also forgets (perhaps) that events which are discussed and recounted will be remembered. This is true for early childhood experiences, and ought to be true of pre-subjectively conscious people also. Jaynes places the *Iliad* too close in time to his date for the change to *subjective consciousness*, and thus has to conduct an argument from an indefensible position.

It is quite possible that the whole of the *Iliad* (as Talbott has claimed) is but a retelling of the "War of the Gods" of 3147 BC. It strikes me, also, as a purposeful creation -- in a purposeful "antique style." If so, it is all the more marvelous that the *Iliad* passed through Jaynes's analysis transparently.

What we are seeing perhaps is the embellishment of memory on a grand scale, although the rigidity of the underlying structure of the *Iliad* argues for a conscious composition. But the *Iliad* was also extensively edited and codified after about 600 BC by others.

The *Iliad* was written with clear intent, as was certainly understood since the 19th century AD by literary critics -- Guy Davenport in 1954 wrote, "Not a line ... can be put out of its place" -- and with a clear political balance between the egos of the Asiatic and the European Greeks. But the facts of a detailed fiction along with an adopted diction has little to do with Jaynes's analysis, which deals with the use of body-part nouns for feelings and emotions and the actions initiated by the Gods. There is no need to consider the historical dimensions of the *Iliad*. Jaynes makes this clear in the closing paragraphs of his investigations of the *Iliad*, and I certainly agree with his conclusions.

[\[return to text\]](#)

Note 30 --

In *Collapse* (2005), Jared Diamond writes about communal decision making in the highland communities of New Guinea, still in practice after the arrival of Dutch and Australian colonial government in the 1930s:

"Decisions were (and often still are today) reached by means of everyone in the village sitting down together and talking, and talking, and talking."

And, he notes, this happens today to the extreme frustration of New Guinea government officials. As I note elsewhere, the same process of reaching complete consensus through endless talk was used by the much larger groups of Plains Indians, in the 19th century AD, to the frustration of US treaty negotiators.

[\[return to text\]](#)

Note 31 --

How can Steven Pinker, popular author of books on language, all based on the notion that language is an inherent function of the brain, evolved over millions of years, be so wrong? (*The Language Instinct* (1994) and other books.) My first clue was his complete misunderstanding of "baby talk." He understands it as functional. I understand it as a completely disinterested attempt to communicate with children. I finally verified what I soon suspected, that Pinker has no children and has thus never had the opportunity to closely observe children in the acquisition of language abilities over extended periods of time.

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Note 32 --

But note that, despite the shorthand of this statement, what we are talking about is *subjective consciousness*, not *self-consciousness*. I have seen people dismiss Jaynes by noting that chimps show signs of self-consciousness. Well, so do my dogs. Animals certainly know who they are and are able to reflect on themselves. But no chimp has ever escaped a zoo. That would require a measure of *subjective consciousness*.

Added note: In 2006, a chimp escaped from a zoo in the US.

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Chapter 29: The Maya Calendar.

\$Revision: 42.2 \$ (maya.php)

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The Mesoamerican / Maya calendar contains cycles within cycles, all of which are held as significant to some degree in determining the "quality" of any day in time. Many of the cyclical features look like remnants of earlier calendar systems which could not be discarded, but were carried forward in time as each change in the calendar was forced upon the users with a change in the structure of the Solar System. I would thus suggest that the current calendar -- because of its inclusion of these arcane, and in some cases near-useless, features -- shows faithful and careful adjustments to changes in the number of days in the year over a very long period. I'll suggest, in fact, that a calendar can certainly be traced back with certainty to the era starting in 3147 BC, and likely solar years before that. I think this is clearly shown by the remnants retained at later times. In fact, a page of the *Chilam Balam*, which deals with the events of 2349 BC, specifically states, "And then days of the year were introduced." But this is the addition of a round of 13 numbers superimposed on the original "monthly" calendar of 20 named days.

- The initial period when the southern plasmoids showed up started in 10,900 BC.
- In 8347 BC, as the 13th Baktun (400 year periods) on the ongoing yearly calendar was completed, the first era of the plasmoids came to a close, and a new count was started, at least of Baktuns, Katuns, and Tuns. 2553 ssolar years had lapsed since 10,900 BC.
- The fact that 13 Baktuns were completed was long remembered. In fact two of the inscribed Long Count series of glyphs are counted from this date

when the earlier period ended in 8347 BC. (At the Temple of the Cross at Palenque, and at Stela C at Quirigua. So says Sylvanus Morley in the 1915 Smithsonian Institution, Bulletin 57 of the Bureau of American Ethnology, *An Introduction to the Study of Maya Hieroglyphs*. J. E. Thompson confirmed this in 1950.)

- In 3147 BC, again as a 13th Baktun on the ongoing calendar was completed, the "Era of the Gods" came to an end. Again a new count was started of Baktuns, Katuns, and Tuns. This time a rotation of days was instituted, amounting to a rotation of 20 named days. These repeated 12 times to account for the 240 days of the year. The 12 may have rotated at the same time as the 20 named days.
- In 2349 BC this was augmented with a rotation of one extra day, a total of 13 numbered days (which also represent a half period of the Moon) simultaneously with the 20 named days. This is called the "Tzolkin," and consists of a total of 260 distinctly identified days (named and numbered) before repeating again, and exactly filling the year of 260 days.
- In 1492 BC another calendar was introduced, called the "Haab," consisting of 20 numbered days rotating through 18 named "months," which totalled 360 days.
- The Haab was adjusted in 747 BC to add 5 extra days (a short month), so that the calendar then totalled 365 days.
- An accurate count of days was also established in 747 BC, with a system called the "Long Count." The Long Count tallied days, "months" of 20 days, years (called "Tuns") of 360 days (not 365), double decades of 20 Tuns (called "Katuns"), and a measure of 400 years, called simply "400," or, in the nomenclature of archaeologists, "Baktuns."

It is also certain that there was a calendar, in the sense of a count of years going forward from (the retrocalculated year) of 3114 BC, since the Maya *Chilam Balam* correctly places the earliest event of the current era in the properly named double-decade Katuns.

Also, some count of years, or spans of time, was recorded since circa 41,000 bp. One of the pages of the *Chilam Balam* specifically deals with this.

I should also note that the Baktuns and Katuns were probably in use by 10,900 BC, for the *Chilam Balam* has reference to this in Book 11 which details the "first creation" of 10,900 BC. In 8347 BC, with the end to a period of about 2500 year of the southern ball plasmoids, the count of years had reached 13 Baktuns, and the year tally was reset to zero.

It happened again in 3147 BC, with the collapse of the "Era of the Gods," that 13 Baktuns were reached. Thus in 3147 BC the Baktun measure of the calendar was again reset to zero. This marks the termination of the "Second Creation" of the Olmec and Maya, marked especially since it was accompanied by the worldwide flood. Meanwhile, Saturn had started to blaze in 4077 BC.

Note that the "Creations" are not clear-cut episodes separated by definitive collapses of celestial conditions. For example, the date of 4077 BC, when Saturn blazed up in a nova expulsion, is not accounted for. It makes one suspect that the whole idea of various numbered creations is a constructed effort of a late date.

With the institution of the Long Count in 747 BC, the Olmecs were able to calculate backwards into the past to determine the exact names and numbers of the days on the Tzolkin calendar and Haab calendar. When the completion of the previous era was reached in 3147 BC (which calculates as 3114 BC) -- the Tzolkin day was 4-Ahau and the Haab day was 8-Cumku. The Peten region Maya were very proud of this feat of retrocalculation and had reference to it constantly in their standing stone monuments.

... preliminary observations

As interpreted by archaeologists, the Long Count used August 11, 3114 BC, on an equivalent Gregorian calendar as a starting point. In that there is a two-day difference in calendars between early Olmec (and current Guatemala) and the calendar of the Maya (and Aztecs), the other widely accepted date is August 13, 3114 BC. In both cases it is assumed that the year has always been the same length as today -- 365.2422 days. The Classical era Maya (AD 400 to 700) also used this measure, arrived at independently, to suggest a series of days which never varied, and retrocalculate the Tzolkin and Haab day names and numbers at the beginning of the current creation -- even though they are incorrect. There were records involved in the recall of history, but they were not accurate.

The archaeological count of days (which match the Maya Long Count against our own erroneous string of calendar days) starts at August 11, 3114 BC. This

was first derived by Joseph Goodman in 1905. Juan Hernández in 1926 came up with a calculation of August 12, which was followed in 1927 by John E. Thompson's calculation of August 13. In 1935 Thompson revised his calculation to August 11. As the dean of Maya archaeologists, Thompson's estimate is generally used today, although any number of researchers think that the date of August 13, 3114 BC, is more likely to be correct.

"Overwhelming support for the precise placement of the Thompson [August 11] correlation number came in the 40's and 50's, when newly discovered calendar counts still being followed among the Quiche, Kekchi and Ixil of Guatemala all supported the [August 11 date]."

-- John Major Jenkins at fourahau2.htm.

The above "correlation dates" are on the equivalent Gregorian calendar, converted from a measure known as the "count of Julian days" used by astronomers since the 16th century AD. The "astronomical year" for 3114 BC is -3113, based on recognizing a "year zero." The Gregorian calendar will match solar years under the assumption that the length of the year has not changed.

The Julian calendar, in use from about 40 BC to about AD 1500, and not to be confused with "Julian days," is based on a year of 365.25 days, and thus the Julian year is slightly longer than the Gregorian year of 365.24 days. By 3114 BC the Julian calendar places dates about 13 months (numerically) further into the past than the Gregorian calendar.

There have been suggestions that the Maya made a two-day correction at some time in the past, and that this accounts for the difference of two days between the Long Count notation found on monuments in antiquity, and in the continued use of the earlier Tzolkin among contemporary tribes.

In fact, Vincent H. Malmstrom, writing in *Cycles of the Sun, Mysteries of the Moon* (1997), suggests that this happened in circa 48 BC -- that the Maya in effect skipped two days, thus setting the calendar ahead by two days. Malmstrom sets out when and where this would have happened, and the reasoning behind the change, but admits that his "story" is pure conjecture.

A "correction" carries with it the suggestion of an absolute and uniform use of the Tzolkin and Haab calendars by many tribes spread over a large area since remote antiquity. The concept of uniform agreement doesn't work among humans. I think it should be considered that by 747 BC, when the Long Count

was devised, there were already some diverse regional opinions on the concept of when one era ended and another started -- a question about the existence ("completion") of two days which had not been seen in progress. Considering that the 2000-year-old Tzolkin was in use among many diverse tribes, it is likely that some stubborn local opinions prevailed. But there might be other reasons, too.

The "August 11" calendar reaches further into the past by two days. It correctly fits the start of the Long Count on February 28, 747 BC, and accounts for later retrocalculations of some past events by the Olmecs. But it was supplanted by the "August 13" calendar because the "August 13" calendar "correctly" fit what was thought to be the quality of a number of important dates in the year 685 BC, and in 1492 BC. (See the discussion in the chapter "The Day of Kan.")

My sense is that in the Valley of Mexico, and perhaps also in the Olmec coastal region, the "August 11" calendar was replaced by the "August 13" calendar by 400 BC, but long after the use of the "August 11" calendar had been exported and adapted by tribes in Southern Mexico and Guatemala, where it has been retained in the same form to today. (Some researchers have suggested that the calendars may have started in Guatemala.)

It should also be pointed out that August 11, 3114 BC (or August 13), is not the start of the current era, but is the end (the completion) of the previous era. The texts at Palenque, for example, make this clear when it is read:

"And then the past epoch ended. On 4-Ahau 8-Cumku [presumed to be August 13, 3114 BC], 13 Baktuns were completed."

The transliterated text reads:

"(And then) there was an event / (on) 4-Ahau / 8-Cumku / were completed / 13 Baktuns"

There can be little doubt, no matter how it is translated, that this phrasing speaks to the completion of a previous 13 Baktuns -- 5200 solar years. It points directly to an earlier calendar which would have started in 8347 BC. Occasional stelae specify the placement on the day 4-Ahau 8-Cumku (erroneously) of "the three stones" or alternately the first "image of the turtle." The references here are to a day in the year 3147 BC, but the day name and number are known only because of a retrocalculation by the Olmecs or the people of the Valley of Mexico in antiquity, probably after 600 BC, which found this day name and number for the

restart of the calendar in 3147 BC, even if incorrect. It is, in fact incorrect since the three stones or the turtle were seen to be placed in 10,900 BC.

Support for a correlation based on the date of August 13 (for the year 3114 BC) comes from the record of eclipses, which cannot be off by a day. My observation is that the starting date of February 28th, 747 BC, Gregorian, corresponding to the Long Count date of 6.0.0.0.0, can only be upheld with an "August 11" correlation. This matches the start of the Era of Nabonassar in the Eastern Mediterranean region (the evening of February 27, 747 BC) and the start of the Roman calendar (the day after February 28th). I think the arguments among archaeologists and historians may be meaningless. It should be recognized that there were two Long Counts in use, and that they differed by two days. [\[note 1\]](#)

The first Tzolkin date inscription was in use at the Zapotec site of San José Mogote in the Oaxaca region in about 600 BC. By 400 BC the Tzolkin and Haab calendars were in use at Monte Alban in Oaxaca.

In 1939 the earliest engraved Olmec Long Count was discovered and depicted on Stela C from Tres Zapotes as 32 BC (Julian). Malmstrom notes that this stele celebrated a total eclipse of the Sun as it rose out of the Eastern Gulf of Mexico, if the August 13 Thompson correlation is used. Otherwise it would be off by two days. Malmstrom notes a transcription error in the stele (carving three bars rather than two to accompany the three dots for the "kin") and then writes about the eclipse:

"... whose path ... passed right over the Olmec ceremonial center of Tres Zapotes at dawn on the morning of August 31, 32 B.C. A more frightening celestial event can scarcely be imagined, for the sun rose out of the Gulf of Mexico totally black except for a ring of light around its outer edges. [It was] described as an annular, or ringlike, eclipse, and subsequent calculations at the U.S. Naval Observatory have revealed that the disk of the sun was 93 percent obscured (personal communication). Surely, a 'day without a sunrise' is not likely to have gone unrecorded by the Olmecs!"

He concludes with:

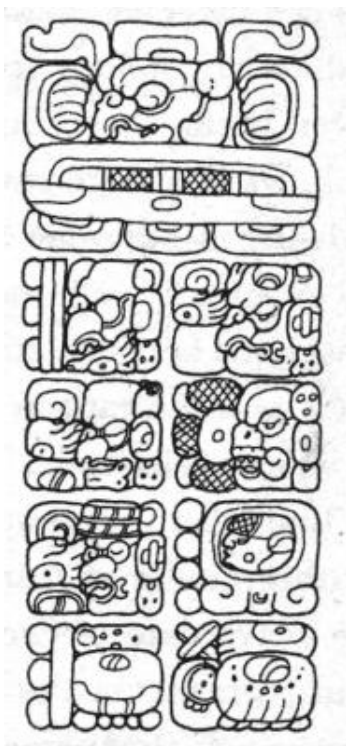
"... therefore, the inscription of Stele C, erroneous though it seems to be, appears to confirm the accuracy of the original Thompson correlation value [August 13] between the Olmec calendar and our own."

Malmstrom also identifies a much later eclipse seen at Copan (Copán) on June 29, AD 763 (9.16.12.5.17 6-Caban 10-Mol), and suggests that it had been predicted. Again, the date agrees with a lunar eclipse only if the "August 13" correlation is used. The date was recorded on a half dozen stelae. Archaeologists have not as yet accepted this. (Surprise!)

It should be obvious also from many inscribed stelae that it is the completion of a time period that is celebrated, not the start. The event of 3114 BC (actually 3147 BC) is known as the end of the "second creation," which is inferred from the fact that the event which we know as the "flood of Noah" is consistently called the (completion of the) "third creation." The reason the "second creation" of 3114 BC ended with the completion of 13 Baktuns (the count of years then went to zero Baktuns), is that the predecessors of the Olmecs had already been counting years (solar years) for a span of 13 Baktuns since 8347 BC, and likely from much earlier.

In that the Sumerians managed to have a count of years (in days) from 4077 BC, it is reasonable to suggest that the Olmecs or their predecessors were also perfectly capable of this. "Counting," after all, must have been one of the high sciences even for the slightly more remote Cro-Magnons.

The Beginning of Time



[Image: August 13, 3114 BC, day "zero" of the Maya calendar. This reads, "13 Baktun, 0 Katun, 0 Tun, 0 Uinal, 0 Kin, 4-Ahau 8-Cumku, was (first) seen the image." After research.famsi.org.]

The phrase of "the image" is completed by some stelae as "the image of the turtle." As a turtle this would represent the first appearance of the southern plasmoids. We could most likely place the first showing of Peratt's southern plasmoids in 10,900 BC, the year of the first contact with Saturn at the start of the Younger Dryas which destroyed North America.

It has always been strange to note that the "zero" number for the Baktun at the start of the current era (the Maya retrocalculated 3114 BC, although actually 3147 BC) actually has a value of 13 Baktuns. Also, the date of the start of the "first creation" is not the nova event of Saturn in 4077 BC, which the *Popol Vuh* describes as the "dawning of the light," but an event 7000 years earlier -- the first instance of the showing of the southern ball plasmoid.

Here are the four creation periods:

8347 BC, end of the first creation
3147 BC, end of the second creation
2349 BC, end of the third creation
1492 BC, end of the fourth creation

The last period is questionable, it might not be over yet.

In the iconography of the Maya, the "turtle," which first appeared in 10,900 BC, at the start of the "first creation," is often combined with the appearance of Jupiter ("Hun-Nal-Ye") as the "First Father" in 2349 BC, at the end of the "third creation." Just like the second and third southern plasmoids would seem to have appeared out of the carapace of the "First Turtle" soon after 10,900 BC, so First Father is shown to rise out of a turtle carapace in 2349 BC, assisted by Hunahpu and Xbalanque (from the era of the 7th century BC, no less). This scene is repeatedly shown on bowls and vases. And this is how the mythological history of the Maya advanced.

In *Maya Cosmos* Freidel and Schele present the imagery of a painted pot showing six Gods in council with a elderly seventh God. The council is advising the seventh god to "bring into existence" and "put in order" the place called "black is its center" -- a fit description of the deep shadow at the center of the

Absu which changed size and shape over the year. It suggests that the dark doorway of the Absu was hiding something.

The elder God (God L) of the pained pot is easily identified as Jupiter as well as First Father. The six Gods have various names, of which some are easily identified. God "Three Born Together" is obviously the three plasmoids of the south and God "Nine Footsteps" is Mars. Subtracting God "Three Born Together" of the south leaves five Gods all associated with the polar configuration of the north. This is the same number as listed in the *Popol Vuh* (see the chapter "The Popol Vuh" for details). These are Uranus, Neptune, Saturn, Mercury, and Mars, all of which were easily distinguished in the earliest time after 9500 BC, although some disappeared behind (or above) each other by 5800 BC. And Mercury is misnamed for Venus, which probably did not exist as early as this council is meant to depict. God L (Jupiter) is here distinguished from the polar configuration planets, and it is a rare insight to suggest that indeed at the time of the council, sometime before 8347 BC, Jupiter had been known and seen for eons, and therefore was properly represented as very old.

This illustrated pot also points up the Mesoamerican concept of the simultaneity of time. The council of the six Gods happens after the start of the "first creation" period after 10,900 BC as told by the *Popol Vuh*, resulting eventually in the creation of the Sun -- the lighting up of Saturn. But the disposition of the dark spot -- the cleft -- in the Absu, in fact the whole of the Absu, is not tackled until the end of the "third creation" of 2349 BC. Most of the six Gods had long since disappeared from view by then. Archaeologists today think that the "dark spot" is a dark area of the cloud of stars of the Milky Way.

The other (and more common) image which is often represented as first appearing on 4-Ahau 8-Cumku, is the setting of the three hearthstones in the sky. These have been identified by Schele as a star of the belt of Orion and two of his feet (Alnitac, Rigel, and Saiph). The cluster M-42 is enclosed in this triangle, like a fire at the center of a three-stone hearth. The constellation is below (slightly east) of the intersection of the equatorial and ecliptic, and removed from the brightness of the Milky Way. In fact, these stars first showed up in 2349 BC, the date of the end of the "third creation," at a location known as "Lying-down-Sky" which must represent the gap in the Absu during the equinoxes. Other names for the shadow gap in the Absu are the "Earth Partition," "Black is the Center," and "Cleft Sky" -- the name for Yaxchilan. Where the Earth shadow fell on the Absu, no stars would have been seen in the dark area.

Since the skies have been invariant since even before 10,900 BC the three hearthstones could not refer to the end of the second creation ending in 3147 BC, but to the first creation ending in 8347 BC. As stars, these three stones were not placed; they were always there, although not seen until some time after 2349 BC. This would suggest to me that the "setting of the three stones" probably refers back to the "first creation" when the three southern plasmoids appeared in the south -- set beneath the "mighty stone" (Saturn) of the north, as the *Chilam Balam* relates in Book 11.

The date of 3147 BC is actually a reasonable estimate for the start of the near-current era, that is, as the date for the close of the "Era of the Gods" and the end of the second 13 Baktun cycle of sets of 400 years (5200 years). The Olmecs must have had a record of the number of solar years which had lapsed since various worldwide events, and were certainly able to place events in named year tallies after 3147 BC. The records of the *Chilam Balam* books of the colonial-period Maya are accurate to the Katun (20-Tun period) after 3147 BC, allowing for some slight-of-hand by the 16th-century-AD Maya scribes, who made some unwarranted "corrections" to the chronology.

Time spans between "ages" (after 3147 BC) show up in later Mesoamerican legendary histories and are correct or nearly correct, and match the records of other civilizations. No clear record of events or time spans shows up among the sparse Mesoamerican records of the much earlier period before 3147 BC, except as might be inferred from their calendar measures.

When the Long Count was established in 747 BC by the Olmecs, they added six Baktuns (2400 Tun years) to a starting calendar date of 0.0.0.0, based on the assumption that the year (the Tun) had always consisted of 360 days. This was correct at that time, because the year had indeed consisted of 360 days since the establishment of earliest Olmec ceremonial center after 1500 BC (San Lorenzo). Thus the Olmecs also removed from the Long Count calculation the five-day correction that was added to the annual Haab calendar in 747 BC -- the "years" in the Long Count are based entirely on the earlier 360-day intervals, not on 365-day intervals. The rather arbitrary addition of 2400 Tuns (six Baktuns of 400-Tun years) to the Long Count would bring the actual "zero" date to 3147 BC, off from the archaeologically and Classic Maya retrocalculated date of 3114 BC year by 34 years. [\[note 2\]](#)

A "Tun" is a year. Before 3147 BC (the thousand years of the "Era of the Gods" and the 4000 years before that) the Tun was 225 days (I have assumed). After

3147 BC (the worldwide flood) the Tun was 240 days. After 2349 BC (the "flood of Noah") the Tun was 260 days. After 2193 BC (the fall of Akkad and the Old Kingdom) the Tun was 273 days. After 1492 (the Exodus and the fall of the Middle Kingdom) the Tun was 360 days -- and at this value it remained in its Long Count use, even though 5 additional days were added to the year after 747 BC when the year changed to its current value. Although the earlier "years" were shorter, the effect of adding 2400 Tuns (6 Baktun) was to have a calendar which reflected solar years, and is thus nearly identical to the accepted (scientific) chronology -- which assumes that all years in the past were Gregorian years of 365.2422 days.

When researchers calculate backwards to 3114 BC, using an actual count of days, they use a 365.2422-day Gregorian year. The researchers and archaeologists thus end up being able to place events in certain "years" which will match the intent of the Olmec and Maya Long Counts. Both are in error in terms of the actual number of days before 747 BC, but both are nearly correct in terms of "years" if these represented solar years. Both are in error because the later Maya also ignored the fact that the Olmecs knew the length of the year had been 360 days prior to 747 BC, and, in fact, designed the Long Count to tally in 360-day Tuns, not 365-day Haab years.

I have no problem with the suggestion that history might have been remembered from long before 3147 BC, or that some aspects of the Mesoamerican calendar date back to 2349 BC, and the count of years dates from before 10,900 BC. After all, in Northern Mesopotamia people had been accounting for trade products since about 8000 BC, and kept track of the number of days since 4077 BC. [\[note 3\]](#)

Mesoamerican iconography seems to spring to life sometime around 1500 to 1200 BC without any sign of a developmental phase. These are the dates of the first images carved in stone or engraved on celts. This suggests that the stone carvings were preceded by a long period of works in wood and other fugitive (perishable) materials, a period possibly lasting thousands of years. As an example of how long records could last, note that the *Dresden Codex*, a book on plaster-coated tree bark, was transcribed in about AD 1200 from material dating to before AD 700. It was sent to Spain after AD 1550. Such long endurance of books suggests the possibility of other records dating from more remote antiquity -- including, of course, chronological records.

Over the following few paragraphs I will speculate about possible early calendars, although after 2349 BC the use of a day and month calendar is certain. In circa 2350 BC Yao, the first "emperor" of China corrects the calendar. In the *Enuma Elish*, dating from Babylon sometime after 2000 BC, but detailing events in 2349 BC, the God Marduk does the same. Both of these instances assume there was an earlier calendar.

The First Calendar

I have estimated that before 3147 BC the year was 225 days long (see Appendix A, "Chdonology Notes"). A very simple but sophisticated calendar system could have been in use: the year was divided into 9 groups of 25. Fingers of one hand could be used to count up to 4. When 5 was reached the other hand closes a finger -- representing 5. Thus the other hand could hold a total of 25 units. The "Nine Lords of the Night" rotated nine times through the sets of 25 to count to a total of 225 days.

I am using the five fingers because both Olmec and Mayan ciphers were represented in base 5. The "Nine Lords of the Night" were still being counted 5000 years later, and still rotated endlessly through nine names. [\[note 4\]](#)

The "Nine Lords of the Night" together with the 25 "day numbers" (or more likely "day names") would produce 225 unique names for the days of the year. This sort of system would constitute a calendar which might have been a model for the later Tzolkin, which rotated 13 numbers against 20 names.

Who the "Nine Lords of the Night" were, or what they represented at the time before 3147 BC, is unknown. I suspect, on the basis of other sources, that the "Nine Lords of the Night" represented Jupiter and the eight nearest satellites, visible at close range after 3147 BC. Jupiter was known as "The Nine." See the chapter "The Chilam Balam" for this.

The "Nine Lords" might also represent an assignment of nine gods to the nine rings of the Absu -- the House of Nine Bushes. These would show at night (and not likely be very bright during the day).

left hand: 1 through 4
right hand: 5 through 25
9 Lords of the night (9 x 25 = 225 days)

An Intermediate Calendar

Of course, the previous is speculation. But for the period after 3147 BC, we can be much more certain of a calendar. After 3147 BC the year was (I suspect) 240 days long. The 240 days could be counted as multiples of 20 and could be made to fit 240 if 12 sets of 20 were to be used. A lunar calendar might be suggested for this era, with the period of the Moon at 20 days, but there was as yet no Moon. There is not a single suggestion of lunar calendars anywhere in the world before 2349 BC. It is more likely that the 20-day periods represented agricultural periods. It is possible that the 20 "day names" were rotated against 12 "day numbers" -- which would give 240 unique date-names to the year. [\[note 5\]](#)

The Mayan word for the 20 days is "uinal" which translates as "moon" and means "month." It also means "person," since a count of 20 day names could be understood as addressing all a person's fingers and toes. This person became "personified" as a "time-lord" who brought in the month as a parcel. Because of some such metaphorical construction, the continuity of time for Mesoamerican people was never a certainty (as it is for us) -- the bearer of time might not arrive with his burden.

The "Nine Lords of the Night" -- whatever their value might be -- remained in use.

A Person: 20 digits and toes (day names)
12 Day Numbers (20 x 12 = 240 days)
9 Lords of the Night

The Tzolkin Calendar

After 2349 BC the year went to 260 days. At this point speculation stops, although I have reached a year length of 260 days by somewhat of a circular argument (in Appendix A, "Chronology Notes"). A line of a page of the *Books of the Chilam Balam*, dealing with the events of 2349 BC, reads:

"And then days of the year were introduced."

There certainly was a calendar in use, dating back some 3700 years, as the *Books of the Chilam Balam* show. This calendar consisted of a rotation through twenty

named days. Only the preexistence of the twenty named days makes sense in the subsequent introduction of the Tzolkin calendar.

The count of days, the 260-day calendar known as the Tzolkin, as instituted in 2349 BC, was a lunar calendar. The Moon was intercepted in or after 2349 BC (see the chapter "The Day of the Dead"), and was probably in a stable orbit within a few years. Mesoamerica started to rotate 13 new "day numbers" against the existing 20 "day names" to yield 260 uniquely named days constituting a year. Brilliant! Every day of the year was individually identified and each was different from the others.

It is unlikely that the period of the Moon was 20 days at this time, or that there were 13 months to the year. More likely the number 13 is a count of a half moon period -- from a new moon to a full moon, and back. Thus the period of the Moon was likely 26 days and there were 10 lunar months of 26 days in the year, and 20 half months of 13 days.

Typical of Mesoamerican thinking, it was the completion of a change to a full moon or the finish of the waning to a new moon that counted -- 13 days for each. Thousands of years later, the Maya still call the 20-day period a "month," and a "moon" -- but not the 13-day period. This actually seems strange if the Moon's period was 26 days.

Anyway, each of the twenty days of the Tzolkin "moon period" had a separate name -- Imix, Ik, Akbal, Kan, etc. The glyphs for the day-names are unique from other glyphs in that all twenty are graphically represented as figures of some sort within the frame of an escutcheon seated on three feet. Some of the glyphs have not been recognized, which probably speaks to their extreme antiquity, as does the whole of the arcane nature of this calendar system. Glyphs which are known include tropical plants and animals as the environment of the location where these names were first selected. It has been suggested that these escutcheons are equivalent to the Egyptian name-cartouche used for the names of pharaohs and Gods. The three feet below the frame have been identified as a rope knot (Morley).



[Image: 20 Day Names of the Tzolkin Calendar. After Linda Schele and David Freidel "A Forest of Kings" (1990).]

This system of a day count which rotates endlessly through 260 number-name combinations is actually the best evidence that an earlier calendar had existed. If the Lords of the Night were kept in use since 3147 BC, then there was probably a similar pressure to retain the day names after they became obsolete because they had constituted the base of a previous calendar.

Today the Tzolkin (which is still in use) shows no concern with time as a linear progression, only as a repeating cycle. This is endemic to the Mesoamerican languages, which understand time in topological terms, rather than a series. An "historical awareness" in terms of understanding time as a linear progression does not take hold for another 2000 years. Mayan words for time involve references to round things, circles, and cycles. The future is expressed as going from here to there, as if invoking geography. We do this also, mentally, but our geography of time is a single line with no beginning or end.

The Tzolkin calendar makes no sense to us, who are used to a completely different method of tallying days. But it fits in with the suggested earlier calendar which rotated the "Nine Lords of the Night" against day names. The strangest aspect of the Tzolkin is that the 13 numbers are rotated against the 20 names, rather than "numbering" each of the names in a sequence of 1 to 13.

Perhaps stranger still is that any group of 20 are known as a "month," although this may be because of the design of the later Haab calendar.

The languages of Mesoamerican people did not use tense (serial time) in verbs, but only the sense of "on-going" and "completed." In this manner the cycling of 1-Imix, 2-Ik, and 3-Akbal makes some sense, because to count 1-Imix, 1-Ik, and 1-Akbal would leave the moon-period uncompleted until the 13th count was reached. Similarly 1-Imix, 2-Imix, etc., seems to repeat the Imix day pointlessly. The point was to reach 13, when the Moon would have become full, or new, and simultaneously keep up a rotation through the twenty day names, each of which attributes some quality to the particular day. The result, at any rate, was to have a calendar with 260 separate names for each day of the year.

A Person: 20 digits and toes (day names)

13 Day Numbers (20 x 13 = 260 days)

9 Lords of the Night

The question also occurs, why was this 260-day calendar kept in use when the length of the year and the period of the Moon changed one hundred and fifty years later in 2193 BC, and again in 1492 BC, and then in 747 BC? There could be a number of reasons, but primary is the fact that the Tzolkin calendar, and the later Haab calendar, do not function as we would imagine a calendar to function, that is, as a sequence of numbers which have a one-to-one correspondence to the sequence of days, and are discarded just as the days are irretrievable once they have moved into the past. The Tzolkin has a different function to a people whose language base does not include a strong sense of time (as a "path"), but who do have a heightened sense of space and geography. In Mesoamerica, time had a spatial quality, and the Tzolkin functioned as a map to the domain of time.

I also think that the Tzolkin was kept for the same reason that the *I Ching* in China (dating from the Shang era or before) was never abandoned, even surviving the book burning of 213 BC. If the Maya or Olmec were at all like other people throughout the world, they would believe that all their fortunes and failures in life were predetermined. The only glimpse into the future was to "read" the qualities of each day, for like fate, each was different from any other (and Tzolkin/Haab day-name combinations do not repeat for 52 years). Using the Tzolkin as a guide to life was not unlike contemporaneous Chinese use of the *I Ching*, or Mesopotamian and Indian astrology. Even if the number of days in the year changed and a more rational calendar were to be adopted, the Tzolkin would have to remain in use without interruption.

Modification of the Tzolkin

After 2193 BC the year went to 270, 275, or 280 days. The Tzolkin could easily accommodate the 280-day year by adding an additional rotation of 20 days. I suspect, however, that the year changed to 273 days. By chance, the Tzolkin could also accommodate a year of 273 days, since it would only slip behind by a count of 13 days every year. [\[note 6\]](#)

That the calendar fell out of sync with the Solar year did not matter as long as the Tzolkin's primary purpose was to determine the quality of the days of the year. Consider also that the rotation through the twenty day-names had already been in use for 800 years. Certainly, too, it was kept because it represented high science to the Olmecs.

This science of the Tzolkin was used in the control of the Gods and spiritual powers. Specifically it was eventually used to control the travels of the Sun. This theme resounds through all of the history of Mesoamerica, and was repeatedly proven in the future to be correct and effective.

I suspect another cycle which has come down to us, a count of 819 days assigned in rotation to each of the cardinal points, was added in this era. Researchers have been unable to make anything of this cycle, except to note that 819 is the product of 7, 9, and 13. The period of 819 days revolved through the four cardinal directions.

Linda Schele and David Freidel, in *A Forest of Kings* (1990), note that in Maya texts the God K (also identified as God G-II), who clearly is Mars, is associated with the four directions. We therefore need to look to Mars.

First, let's note that 819 days happens to be exactly three times the length of the year (273 days) at this time (**$3 * 273 = 819$**).

The orbital period of Mars was 720 days. This has been proposed by Donald W. Patten and Samuel R. Windsor, in *The Mars-Earth Wars* (1996), for the purpose of their model, and as related to the period before 747 BC. From my use of this orbital period value, it appears to be correct.

In the era of 3147 BC to 2349 BC, the synodic period of Mars would have been **$(720 * 240) / (720 - 240) = 360$ days**. Thus Mars would show up in the same location of the sky every three years of 240 days, **$2 * 360 - 3 * 240 = 0$** (and once

every year and a half). This three-fold repetition of the calendar year is, of course, also reflected in the mysterious 819 days, as already noted.

Let me suggest the following as a history of this: After 3067 BC (when Mars first started to appear near earth), with the year at 240 days, the reappearances of Mars were marked, correctly, at 3 intervals of the 240-day year, 720 days. This was the index of possible catastrophic interactions with Mars, which was good until about 2750 BC, after which Mars no longer was seen nearby Earth.

After 2349 BC, when the year went to 260 days, three of the 260-day periods were used instead, 780 days. This was incorrect and may have been useless in predicting catastrophes, but that did not matter, for Mars had disappeared from consideration some 400 years earlier, and by the end of the previous era it was probably no longer recalled why Mars had been assigned to one of the cardinal directions at intervals of three calendar years.

After 2193 BC the year went to 273 days. The assignment of Mars to the four cardinal directions was accomplished on a rotation of three years of 273 days, adding up to 819 days. Even if nothing happened, it did not matter. The interval of three years, tied to the four cardinal directions and the planet Mars, was a formal part of calendar computations, and had nothing to do with the close appearances of Mars.

The predictive value of the 819 day cycle was correct when in 1935 BC Mars again made a series of destructive approaches. We could guess that, because of the circular nature of orbits, the interval was still 15 or 30 years, but of course years of 273 days. Mars would cruise close to Earth after every 5th interval of 819 days.

What then happened at 819-day intervals after that? It may have been kept at the value of 819 because in 1492 BC and 1442 BC a different planet, Venus, started interfering with Earth. The Mars cycle of 819 days remained unchanged. The next opportunity would have been in 1492 BC when the length of the year changed again. But no changes were made.

A Person: 20 digits and toes (day names)
13 Day Numbers (20 x 13 = 260 days)
819 days rotated against the four cardinal directions
9 Lords of the Night

The Haab Calendar

After 1492 BC the year changed to 360 days, and the period of the Moon changed to 30 days. This is certain from many sources throughout the world. A solution would have been to add five additional sets of 20 "name day" rotations ("months") to the Tzolkin, or to add five more numbers (from 13 to 18). But this would have been completely unacceptable, for the Tzolkin had to remain as it was, as it had been for 1500 years. To extend the count would have been equivalent to changing our 7-day week to 9 days.

The only solution was to start up a separate calendar for the 360-day period. This was done by starting a rotation through the names of 18 "months" (Uinals) of 20 days each, called the "Haab." Seven hundred years later this was augmented with 5 more days. Now for the first time we see a calendar instituted which has a familiar sensibility, like the numbered days of our months. The 18 months were separately named, but only 20 days were assigned to each month. The glyphs for the months are completely different from the Tzolkin glyphs and have the characteristics of the later development of the written language. A number of them also simply translate to "first," "second," etc. But the "months" -- that is, the Uinals -- still were 20 days long as they were previously, and were called "months" -- that is, a word meaning "moon." [\[note 7\]](#)



[Image: The eighteen months of the Haab calendar plus the additional five-day period of the "sleep of the year," Uayeb. After Linda Schele and David Freidel "A Forest of Kings" (1990).]

The 20 day **numbers** were most likely modeled after the 20 day **names** of the Tzolkin. The 360-day calendar of 18 months of 20 days also makes no sense, since the actual (lunar) months were 30 days long, but it neatly filled the year, and every three calendar months (60 days) coincided with two rotations of the Moon.

The Tzolkin remained in use, arcane as it was, to determine the quality of any day, and, nearly 3000 years later, as used by the Aztecs, determined the lot in life of a person named for a particular number-name day on which he was born.

The two calendars were entirely different, yet both were kept in use for the next 3000 years. (In some regions of Guatemala and Mexico they are still in use today.) Days were identified, in the Classical era of the Maya, for the number-name of the Tzolkin, followed by the number-name of the Haab. The two calendars of 260 days and 360 days would not repeat a combination of two names for 13 years.

A Person: 20 digits and toes (day names)

13 Day Numbers ($20 \times 13 = 260$)

18 months of 20 days ($18 \times 20 = 360$) (13 year cycle)

819 days rotated against four cardinal directions

9 Lords of the Night

The Haab Revised and the Long Count

After 747 BC the year changed to 365 and 1/4 days. The Olmec correction, like almost everywhere else in the world, was to add 5 unnamed days at the end of the year. For the Olmecs this was a 19th short "month" Uayeb of five days, called "the sleep of the year." Actually this would shift the year one day backwards in the solar year every 4 years, for it did not account for the quarter day left over. The revised calendar in Peru actually added a leap day every four years. Mesoamerica through Classical times did not, with the exception of the Zapotecs at Monte Alban (after about 400 or 200 BC).

In 747 BC the Olmec also started to count days, perhaps to recalculate the length of the year after the Earth shock of 747 BC. This is known as the "Long Count"

which was carried into the future without interruption for the next 2700 years, but was mainly used by the Maya until about AD 900. The count started on February 28 of 747 BC (actually the Julian year of -748) with all measures set to zero -- zero days (Kins), zero months of 20 days (Uinals), zero "double-decades" of 20 Tun years (Katuns), and zero years of 360 days (Tuns). In our notation of these Katuns, Tuns, Uinals, and Kins, the Long Count is rendered as 0.0.0.0 February 28, -748.

This is also the date of the start of the Babylonian "Era of Nabonassar" (which starts at nightfall of February 27th), and the same calendar day after which the Romans restarted the year since the 8th century BC. [\[note 8\]](#)

A larger unit, called a "Baktun," consisting of 20 "Katuns," (400 Tun years of 360 days) was added at the same time or at a later date. A starting "Baktun" value of "6" was assigned to February 28 of 747 BC. The official Long Count date for February 28 -748 (using our dotted notation) thus reads "6.0.0.0.0 11-Ahau 8-Uo," where "11-Ahau" and "8-Uo" are the day names in the rotating Tzolkin and Haab calendars. (This is based on the August 11 correlation of Thompson.) The odd day-names, both located in the middle of the Tzolkin and Haab calendars, confirm that the Tzolkin and Haab were already rotating simultaneously before this time.

It might be possible to estimate from this when the Haab was first instituted, or what the general plan for the Haab was. Others have suggested that it is likely that the summer or winter solstice was used to celebrate the start of the year. But this notion reflects our contemporary reductionist calendar concepts. It also reflects our thinking that calendars should start at the first day of the first month. That is not at all certain.

Some people in Guatemala celebrate the New Year at the winter solstice, or actually at Christmas. This is when the Haab recycles for them. But it is the 9th month of the Haab. But it is also possible, as I pointed out above, that the Haab calendar and its later extra 5-day "month" were instituted without regard for an elegant design, and was arbitrarily added to the existing Tzolkin. [\[note 9\]](#)

What is of greater interest is to know how soon the Haab was corrected by adding 5 additional days. By the 18th month (of 20 days) after February 28, 747 BC, it would have been obvious that the year was now longer, and a 19th short month should be added. But since the Olmecs kept track of the setting position of the Sun by days of the Tzolkin and Haab, it is likely they had a much earlier indication of how many days the year had slipped behind.

The intercalated 5 days were added probably as soon as the first one of the longer years was about to pass. The traditional use of the Haab in the Classical era adds the extra five days after the 18th month, Cumku. In fact it was added at the end of the first new longer year, as can be confirmed from the current usage by the Chiapas (see below). Otherwise there would not have been the amazing simultaneous coincidence with the start of the Era of Nabonassar.

Verification that the 5 days were added after only one of the old years had lapsed, comes from the practices of contemporary upland Maya in Chiapas, Mexico, who retain a form of the Haab calendar today. The contemporary Haab calendar, in this instance, starts directly after Christmas, that is, a few days after the winter solstice. No accounting is made of the fact that the calendar will slip backwards against the Gregorian calendar. Somehow an extra day is added every four years.

The year starts with a Haab month which, from its name, is the equivalent to the ninth month of the older Haab of antiquity, and continues in sync with the Haab of antiquity. The second month of the contemporary calendar is the 10th month of the old Haab, etc. There is one exception. The intercalated 5 days are placed after the third month (of 20 days), not after the last month. The third month of 20 days ends on February 24. The intercalated days start on February 25 and conclude on the day after February 28. [\[note 10\]](#)

The use of the Long Count, and especially the starting value of 6 Baktuns, shows that an historical awareness had developed by 747 BC. Six Baktuns represent 2400 solar years stretching back in time to 3147 BC. The Olmecs figured the past on the basis of 360-day years, but the actual length of the year does not enter the basic calculation of when the current era started. A Tun was a solar year; the length did not matter.

The Long Count rotates through Tuns of 360 days (18 times 20), and all the future uses of the Long Count disregard the 365-day Tuns, and counted instead in 360-day Tuns. This is rather amazing, and probably confirms that the Long Count was started simply to measure the new number of days in the year.

Of course what we do is to use 365.24 days as the length of the year, and simply count backwards by days (called the Julian day count). Within a few hundred years after 747 BC, the Olmecs ended up doing the same thing, that is, using 365.24 days. The prior year length of 360 days used by the Long Count was ignored or forgotten.

That the Long Count was started in 747 BC is apparent also from the fact that 6.0.0.0.0 of the Long Count falls on February 28, 747 BC, but also from the fact that this date completes a Katun 11. Katuns are named after the last Tzolkin day of a Katun; in this case the day 11-Ahau. This last is significant when we know from the 16th century AD Maya *Chilam Balam* that all of pre-history always was assigned to Katun 11-Ahau.

Some 1400 years later, in circa AD 700, the Maya at the site of Palenque retrocalculate dates 3000 years earlier, and list them according to the notion that the past -- all of the past -- consisted of 365 day Haab years, not 360 day Haab years. The Maya (or their Olmec predecessors) also retrocalculated back to the very beginning of the current era (the "second creation") to find that the initial Haab and Tzolkin days name and numbers were 8-Cumku and 4-Ahau. This works for both the "August 11" and the "August 13" concordance.

What does not work in this retrocalculation, is finding a Katun 11 ending for the previous era. The previous era ends in 4-Ahau, and thus the previous Katun is named Katun 4-Ahau. Despite this, when the *Chilam Balam* (in Book 10) recounts events from before the start of the current era (before 3147 BC, but thought to be 3114 BC), they are listed as happening in Katun 11. The notion obviously is from the time in 747 BC, when the Long Count was instituted as a Katun 11 had just ended. See the chapter "The Chilam Balam Books."

A Person: 20 digits and toes (day names)
13 Day Numbers ($20 \times 13 = 260$ days)
18 months of 20 days ($18 \times 20 = 360$ days)
19th month of 5 empty days (= 365 days)
819 days rotated against four cardinal directions
9 Lords of the Night

Of course the rotating calendars make no sense. Only the Long Count makes sense. One could tell how far in the past an event had happened, but only in terms of months (Uinals), which fell short of a cycle of the Moon, and years (Tuns) which fell 5 days short of the solar year. A relationship to the solar year could be kept by celebrating New Year at the summer (or winter) solstice, although solstice dates are not easy to determine. In fact, none of the people of the Central Valley of Mexico or the Maya of Mexico or the Guatemalan Peten celebrated or marked a solstice date, with the exception of the Chiapas mentioned above who remodeled their calendar to fit a Christian liturgical feast day near the winter solstice.

The actual day-name and day-number of a New Year day would change with each year. In the Yucatan the Maya of the Classical era celebrated the new year on July 26, when the Sun passed directly overhead at the site of Edzna, as did the people of Teotihuacan in Central Mexico (circa AD 200).

The simultaneous rotation through the 260-day cycle and the 365-day cycle would repeat every named day combination only once every 52 years (actually 52 "tun years"). That was of course significant in that it reflected the "traditional" possibility of reaching the end of creation (the so-called "52-year Venus cycle"), as was initially determined in the period between 2349 BC and 2193 BC.

The 365-day year, without leap days added, also kept exact pace with the synodic period of Venus, which was probably much more important than any other considerations. As long as there was a strong interest in the movements of the planet Venus, it would make sense to not add the leap day, and retain the traditional calendars. The complex Tzolkin and Haab calendars spread everywhere in Mesoamerica, but the Long Count only saw wide use by the Maya.

The Katun Cycle

After circa AD 900 the Maya give up on the Long Count which had reached back 1500 years (4000 years if retrocalculated), and continue to use only a short cycle of Katuns -- 20 years of 360 days, about 19.7 solar years total for each Katun. Consecutive Katuns were collected in a repeating series of 13 Katuns (rather than the 20 Katuns constituting a Baktun), because the ending day-names of the Katuns repeat after 13 Katuns.

The cycle of 13 Katuns is approximately 256 solar years. This series is all the Maya retain of their calendar, 600 years after the collapse of their kingdoms -- plus, of course, the endlessly repeating assignment of days to the Tzolkin, the Haab, and the "Nine Lords of the Night."

Consecutive Katuns always are listed as starting with Katun 11, named after the last day, 11-Ahau, and are followed by Katun 9, etc., with the series of declining even numbered Katuns after the last of the odd-numbered Katuns, Katun 1. This is seen in use in the 16th century AD Maya *Book Of Chilam Balam*.

Others have suggested that this is because Katun 11-Ahau **begins** with 1-Imix, the first day of the Tzolkin. But in fact it is because a Katun 11-Ahau **ends** on February 28, 747 BC (-748), when the Long Count (6.0.0.0.0) was instituted (using the "August 11" correlation). Katuns are named after the name of the last day of the Katun period, not after the day with which they start (as *we* would do). It was always the completion of a time period, not the beginning, that mattered. For the Maya, unlike for us, a period of time did not **exist** until it was completed; it also did not exist yet while it was still ongoing.

The Four Ages

The concept of "suns" or "sun ages" was recognized throughout Mesoamerica by various peoples, as well as by people in many other parts of the world. (And has become a big deal among catastrophists.) These ages are meant to represent various creations of the world, or recreations after a catastrophic destruction. In Mesoamerica four ages were recognized by all except by the Toltecs and the Aztecs, who claimed that the world had been recreated five times. Both of these people held their own invasion of the Valley of Mexico as the last recreation of the world.

The creations and recreations can be pinpointed, but the series of dates runs into conflict with various concepts of what constitutes a new age.

The Olmec and Maya Long Count calendar starts the "current creation" in (the retrocalculated year of) 3114 BC. This date does not count the two destructions of the Earth since that time, but only recognizes that conditions on Earth and in the skies were completely different before and after. This was known as the "second creation," and from this two ages are recognized.

Book 10 of the Maya *Chilam Balam* books places creations or recreations after floods, and thus recognizes three eras, the periods before and after 3114 BC, and the period after 2349 BC, this last started with an event known as the "third reign" or what would be the "third creation." But the dark skies after 1492 or 1440 BC are also dealt with as the start of a new creation. It is not surprising that this confusion exists, since Book 10 of the *Chilam Balam* is obviously derived from diverse sources.

The concept of "four ages" is a satisfying shorthand if we associate a change of the length of the year with each of the ages, and especially if these events can be associated with some worldwide catastrophe. But it does not work out that way.

What can be gathered from the most reliable source, the *Chilam Balam*, is the following:

- There was a very early age, suggested in the *Popol Vuh* and detailed in Book 11 of the *Chilam Balam* -- the long period before the darkness of the Younger Dryas. And then followed the lighting up of the southern ball plasmoids in 10,900 BC. That was the start of the "first creation." This ended in 8347 BC, and marks the ending of the "first creation." This particular time period is generally not known at all to catastrophists.
- The "second creation" ends in 3147 BC. References to it are only implied in the text of the *Chilam Balam* from the fact that the "third creation" ends later, in 2349 BC. The second age is thus the era between 8347 BC and 3147 BC, and includes (as the last thousand years) the "Era of the Gods."
- The end of the "third creation" is the event we know as the "flood of Noah." Book 10 of the *Chilam Balam*, however, places the "third creation" (incorrectly) in Katun 9-Ahau ending in 2266 BC. It should properly be placed in Katun 4-Ahau ending in 2345 BC.

The fall of the Absu, the end of the "third creation," is noted as "the second baptism" with the implication that the first is the flood of 3147 BC (which is also mentioned). The *Chilam Balam* also implies the start of a new calendar. In this it parallels the Chinese *Annals of Shu*, as well as the Babylonian *Enuma Elish*.

- Despite the fact that Jupiter had burst into flames and lost its coma, disappearing from the skies in about 2150 BC, Jupiter remained the ruling God. Likewise the change in the Earth's orbit in 2193 BC was not an event which defined a new era. The era of the "third creation" continued.
- The electric contact by Venus in 1492 BC starts yet another age, the fourth. In fact the *Chilam Balam* notes that Venus "rubbed the Earth" in Katun 9-Ahau ending in 1486.2 BC (corrected), although this was likely the view of the Van Allen belts in glow mode. A new creation is also to be inferred from the mention of the establishment of the trees of the four cardinal directions. This is the third reference in the document to these trees, noted previously after 3147 BC and 2349 BC. There is also a reference to "walking in darkness," which can be identified as the 40 years or so after the contact by Venus in 1492 BC. The Israelites also "walked in darkness."

"Then they perceived that the world was being created. Then creation dawned upon the world."

The reference to creation is suggested for 1492 BC by its placement in the texts, but could also refer to the 200-year climatic downturn experienced worldwide after 2193 BC.

- There are no further ages referenced. The year 747 BC, which occluded the Sun for two days and changed the orbit of the Earth, had no bearing on the list of ages. The Earth shock of 686 BC could have represented the start of yet another age, but the *Chilam Balam* specifically states that this was not to happen (a retrospective comment). Similarly, the nova event of 685 BC is mentioned but not counted as a new era. In actuality, the understanding was that the world was rescued from Mars by Jupiter.

I suspect that the *Chilam Balam* was transcribed from books indigenous to the Peten and Yucatan Maya. The story of these books may have differed from the records kept among the Olmecs of Veracruz and in the Valley of Mexico, which have not survived.

But we can count four ages from Olmec sources under a completely different paradigm: the site alignments used in the Olmec coastal area since 1440 BC, and in the Valley of Mexico since about 600 BC.

These horizon alignments for sunrise or sunset reference four dates. First, starting at San Lorenzo and followed by almost every later site, the date of April 19, 1492 BC is recalled in the alignment of the setting Sun to some mountain or volcano. Apparently when San Lorenzo was established, the horizon location of the setting Sun for that date was known.

Similarly, at La Venta the alignment for February 28, 747 BC was also known, since it was experienced. After 747 BC the date of August 12, 3114 BC, was calculated with the aid of the newly developed Long Count. Various dates centering on July 685 BC, were also experienced and incorporated into the alignments of sites after 685 BC.

Last, in about AD 200, and at some locations, both since before and directly after 685 BC, the setting of the culmination of the Pleiades is used to signal the event of 2349 BC. These alignments show up at all later sites. The alignments are discussed in the chapter "Olmec Site Alignments."

Endnotes

Note 1 --

The dotted notation, used by archaeologists as a shorthand to identify the Long Count, consists from left to right of measures known as Baktuns, Katuns, Tuns, Uinals, and Kins.

These are thus written in modern form as as Baktun (dot) Katun (dot) Tun (dot) Uinal (dot) Kin. A dotted notation is always followed by the Tzolkin day number and day name combination plus the Haab day number and month name combination.

- Baktuns are sets of 20 Katuns, or 400 Tun years, representing 400 years of 360 days (surprisingly, not 365 days). A Baktun represents about 256 years of our calendar. The word "Baktun" is an invention of archaeologists. The Maya simply called it "400" in representing 20 times 20. The count goes from 1 to 13.
- Katuns are double decades, representing 20 of the 360-day Tun years. The count goes from 0 to 19. This is about 19 years of our calendar.
- Tuns are "years" of 360 days. The count ranges from 0 to 19.
- Uinals are "months," where each count represents 20 of the day counts. Uinals range from 0 to 17. On reaching 18, the next higher number (the Tun) of the dotted notation is advanced one. 18 Uinals thus represent a Tun year of 360 days.
- Kins are days and count from 0 to 19. On the 20th count, the next higher number (the Uinals) of the dotted notation advances one. Kins (days) thus count up to one Uinal "month" before advancing the next higher count.

[\[return to text\]](#)

Note 2 --

For Long Count dates which were retrocalculated by the Maya in circa AD 700 at Palenque, as well as the correction of the Katuns (where I have supplied the Baktun) of Book 10 of the *Chilam Balam*, a correction should be used. This will be based on the suspicion that there did not exist a record in actual Long Count days for events before 747 BC, but only a listing by Katuns and Baktuns. This correction is easy to do: Since 6 Baktuns were added to the dotted date of

0.0.0.0, the starting date of the current era would have been 2400 years earlier (6 times 400), and thus 747 BC less 2400 years: 3147 BC.

The start of the yet earlier era would be 3147 BC less 13 times 400 years: 8347 BC.

For the inscriptions at Palenque the correction should be based on the fact that the Olmecs knew that the era prior to 747 BC represented years of 360 days, not 365.24 days. But this was long forgotten 1400 years later when the Maya of Palenque start carving monumental inscriptions. Our calculations and those of the Maya of Palenque are based on a 365.24-day year, and would be off by 5.24 days per year before 747 BC, that is, the dates we use are placed too far into the past. The correction is **$(3114-747) * 5.24 / 365.24 = 34$ years.**

So, for example, when in AD 700 the Maya at Palenque retrocalculated a date of 2360 BC for some event listed among the inscriptions, it was based, like our calculations, on a 365.24 day year, and would be too far into the past by **$(2360-747) * 5.24 / 365.24 = 24$ years.** The date should be 2336 BC.

The Maya were perfectly capable of calculating backwards, and making allowances for the extra 0.24 day of the year. Anthony Aveni, in *Skywatchers of Ancient Mexico* (1980), notes a number of instances among Maya inscriptions (at Copan) where successful attempts were made to indicate the length of the tropical year. The Maya ended up with a year of 365.2420 days, only 0.0002 days different from the current value of 365.2422 days.

[\[return to text\]](#)

Note 3 --

See the chapter "The Chilam Balam Books" for a retelling of the creation of the world which dates back to thousands of years before 3114 BC and was apparently transcribed from Maya tree-bark codexes. Other pages of the *Chilam Balam* describe the darkness of the Younger Dryas (10,900 to 9,000 BC), and hint at yet earlier ages dating to the equivalent of the European Magdalenian period (17,000 to 14,000 years ago) or earlier (I suspect to 41,000 years ago).

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Note 4 --

The Maya (and Olmecs) used a base-20 in their commerce, but it is difficult to maintain that they also did so with their calendar, as is often maintained. The

"units" of the Long Count do not all advance as powers of 20, since the Uinals advance when reaching 18, not 20. Baktuns cycle at the number 13. The number 20 just happens to be a larger unit to count in, like our dozen or hundred. The glyphic representation is certainly in base-5.

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Note 5 --

Although some of what I have suggested is conjecture, I should note a remarkable similarity of the Mesoamerican 20 day names and 12 day numbers to the calendar of the Chinese Shang dynasty, after about 1400 BC, which rotated 10 "celestial day names" (instead of 20) against 12 "earthly day names" to produce a similar calendar (of 60-day periods), elements of which lasted well into the current era. The Chou dynasty extended the rotation of 60 day names to the names of years. This last persists today.

Although the Shang dynasty is much later than the period under discussion here (before 2349 BC), it would not be at all surprising if the Shang calendar represented a holdover from an earlier period, when the 240-day year was divided into four seasons of 60 days each, thus a total of 240 days. China experiences four distinct seasons; Mesoamerica experiences a completely different cycle of seasons. The Shang, at any rate, added the lunar month days to the 60-day periods to furnish nearly accurate calendar dates during the year.

[\[return to text\]](#)

Note 6 --

I suggest a year of 273 days, based on conjectures developed later in this text. Since 273 is 13 days more than 260 days, the Tzolkin could have been expanded by adding one round of 13 numbers, or the calendar could have been left to slip backwards 13 days per year. The reason for selecting the second might have depended on an initial attempt to keep the calendar in line with the half-moon periods of the previous era. This did not work out, for the Moon changed to a period of 27 or 28 days after 2193 BC, which we know from (later) Shang oracle records.

[\[return to text\]](#)

Note 7 --

It is possible that the Haab was devised separately by a people different from those who devised the Tzolkin, and the two calendars were kept after a cultural

merger after 1500 BC.

[\[return to text\]](#)

Note 8 --

According to Ussher, the era of Nabonassar starts at midnight of February 26th, thus actually on the 27th. Ussher writes:

"From twelve o'clock, on the first day of the Egyptian month Thoth, from Wednesday, February 26th, in the evening, in the year 747 BC, all astronomers unanimously start the calendar of Nabonassar."-- Bishop James Ussher, Annals of the World (1650)

Additionally, because of the Mesoamerican concepts that a day does not exist until it is completed, the Long Count use of "day zero" actually signifies the first day of the new era, so that the actual era-ending date is February 27th.

[\[return to text\]](#)

Note 9 --

The short five-day month can be neglected in any retrocalculation here, because it was instituted in 747 BC. If we take a hint from how the Olmecs dealt with other calendar adjustments, it would suggest that the Haab was instituted the day after the cataclysm of 1492 BC. From an earlier chapter we know that this happened on a Gregorian equivalent calendar date of April 19. (Bible tradition is April 17th.)

On February 28, 747 BC, the Haab day fell on 8-Uo. This is the 29th day of the Haab. Thus, in 747 BC, the annual secular calendar, which starts with 0-Pop, had started 29 days earlier in that year, equivalent to January 30 on an equivalent Gregorian calendar. Thus, between April 19, 1492 BC and February 28, 747 BC the Haab had slipped 80 days backward, which is four 20-day Uinal months. This number is not in any sense meaningful.

Alternately, taking into account the fact that before 685 BC the winter solstice fell some 15 days earlier, on December 8, the Haab would have restarted 53 days after the winter solstice. Except for the fact that 53 days represents a 52-day interval, this also is such an arbitrary figure, that it can only be suggested that there was no relationship between the Haab and either the winter or summer solstice.

Vincent H. Malmstrom, in *Cycles of the Sun, Mysteries of the Moon* (1997), dates the first use of the Haab to 1324 or 1321 BC, based on placing the day 0-Pop (the first day of the Haab) at the summer solstice. The calculation would only be in error by 8 years, since the extra five days have to be subtracted from the Haab for the period before 747 BC. But also it is absurd to think that a beginning date (0-Pop) would be at meaningful in Mesoamerican chronology.

The usage of the Chiapas (see other endnote below) might bear out Malmstrom's conjecture that the New Year (the start of the Haab) was celebrated at the summer solstice, even though the Chiapas today start the year with the winter solstice (actually at Christmas), for they start with the ninth month (Uinal) of the traditional Haab calendar. The name of the month which starts the Haab is clear from the fact that the names of the first few months of the Haab translate to "first," "second," "third," etc. That would place the beginning of the Haab 160 days before Christmas (8 completed months). This is not at the summer solstice, but 24 days later, on July 18.

When New Year is celebrated is a local option. The Maya, as with Teotihuacan, used July 26. In colonial times the Aztecs celebrated the start of the new year on February 26. (There are some discrepancies with respect to this particular date, however. See the endnotes to Appendix B, "Celestial Mechanics.")

[\[return to text\]](#)

Note 10 --

See Gary H Gossen, "A Chamula solar calendar board from Chiapas, Mexico," in, Norman Hammond, editor, *Mesoamerican Archaeology* (1974). Although the Tzolkin was held as sacred, the Haab was apparently adjusted to start as convenient by various tribes.

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Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Chapter 30: The Maya Chilam Balam.

\$Revision: 42.2 \$ (chil.php)

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Introduction

The *Chilam Balam* books are a collection of post-colonial (16th century AD) native manuscripts in the Mayan languages, using the Latin script, which recorded histories and prophecies, many dating back with certainty for hundreds of years, while Books 10 and 11 plus some single pages recollect events dating back thousands of years. All of it is presented in terse and obscure language.

I am tempted to repeat the statement by Hertha von Dechend about "the annihilating recognition of our complete ignorance" for I was struck with the same feeling on first reading the *Chilam Balam* -- I could make absolutely no sense of any of it. It took me six months of daily application to digest Book 10, and much longer to unravel Book 11.

Book 11 recalls events leading to the creation in 10,900 BC of the ball plasmoids of the south. This is the "first creation." Book 11 may include events dating back to circa 30,000 or 40,000 BC. A separate single page of the *Chilam Balam* specifically recalls the "survey of the world" in the period after 10,900 BC, while yet another single page recalls the fall of the Absu in 2349 BC. These additional texts from the *Chilam Balam* will be presented in the chapter "The Olmec Record."

What follows below is an attempt to "read" Book 10 in terms of the chronology of celestial events which I had already established on the basis of information

from the Eastern Mediterranean region, India, and China. Book 10 deals with the "second creation" and subsequent events, including the "third creation."

The Book Of Chilam Balam Of Chumayel was translated into English by Ralph L Roys in 1933, based on original sources, and compared to other extant documents and other copies of the *Chilam Balam*. It is not easy to read, even though the text is supplemented with extensive footnotes and added commentary. One of the stumbling blocks is the mention of many Maya Gods which are still obscure and difficult to identify today. A copy of *The Book Of Chilam Balam Of Chumayel* is on line at [\[http://www.sacred-texts.com/nam/maya/cbc/\]](http://www.sacred-texts.com/nam/maya/cbc/).

I first looked at the *Chilam Balam* after I had written most of the text of these pages. In Book 10 of the *Chilam Balam*, in a section labeled (by Roys) "The Creation of the World," I ran into a phrase which caught my attention:

"Then there came great misery, when it came about that the sun in Katun 3-Ahau was moved from its place for three months."

If there is one thing for certain, it is that since the Sun first appeared, it has never moved, acted up, or changed its look in human memory -- except, of course, in 685 BC, as I had already established. Could this be a record of the nova event of the Sun and the blazing of Venus and Mercury of 685 BC (680 BC in Eastern Mediterranean chronology), when the polar axis relocated, the dome of the sky twisted, and the vernal equinox moved suddenly to another zodiac sign?

A calculation showed that the first 20-year Katun 3-Ahau period after 747 BC started in 687 BC (6.3.0.0.0), two years before my estimate for the nova event of 685 BC, and ended about 20 years later. A closer reading of the remaining text soon convinced me that this Book retold other events dating back to before 3100 BC. And ends, as does everyone else's record of the catastrophic past, in 685 BC.

The clearest indication of these events were descriptions of interactions between Jupiter and Saturn (and their satellites) which can be placed for certain in 3147 BC. It is described with uncanny accuracy -- if we are allowed to transfer the names of two sets of obscure Gods, "The Thirteen" and "The Nine," to Saturn and Jupiter. The remainder of the text of this chapter provides the details. This portion (called a Book) of the *Chilam Balam* recounts what is known among the people of Mesoamerica as the "second creation" and subsequent events of the "third creation" and a possible "fourth creation" through 685 BC.

The Katun Cycle

First a word should be said about the cycle of 13 Katuns in use by the Maya at the time of the Spanish invasion. After Classical times (circa AD 900), the Maya dropped their "Long Count" dating and reduced their calendar to a repeating cycle of 13 Katuns (which was in use already long before AD 900). Each Katun consists of twenty Tuns, that is, twenty 360-day years (not the 365-day Haab years) and thus 19.71 of our Gregorian years, each named after the last day of the period in the Tzolkin day nomenclature. This, as it turns out, is always one of the day-numbers 1 through 13, followed by the day-name Ahau. The Katuns are named, in order, 11-Ahau, 9-Ahau, 7-Ahau, etc., skipping a day-number for each consecutive Katun. The complete cycle of 13 Katuns is approximately 256.26 actual current years.

Because of the Maya philosophy of cyclic time, only this single cycle of 13 Katuns was recognized, and all events were placed within a listing of this cycle, although at times other Books of the *Chilam Balam* texts will list Katuns as a series extending over many cycles. But often events separated by 256, 512, or 1024 years are all listed for the same Katun. Thus when an event is said to occur in Katun 4-Ahau, it could have happened in any 256-year interval of the past, or even be a prediction for the future. It is, in fact, the predictive value of this calendar that forced the Maya to consider that all events of the past had been accomplished in a single repeating cycle, and would happen again. [\[note 1\]](#)

In the text below, I have added corrections to the (retrocalculated) Gregorian years to show solar years, based on the indication that the Long Count was started in 747 BC, on a day matching similar efforts at calendar reform in the Eastern Mediterranean. The Olmecs added 6 Baktuns to a count set at 0.0.0.0 on February 28, 747 BC (the completion of the disturbance). Thus to correct for our insistence in calculating backward in time under the assumption that the year was always 365.24 days (as the Classical Era Maya also did), we can place the Long Count date of 0.0.0.0.0 at 6 Baktuns before 747 BC, at 3147 BC.

The corrections are then made by counting forward in time with **3147 - 400 * Baktuns - 20 * Katuns** up to 747 BC (even though the year 747 BC on which this is based is actually -747).

Retrocalculation for dates from the sculptures at Palenque (circa AD 700) require a different method. This has been covered in the chapter "The Career of Jupiter," and takes into account the difference between 360 and 365.24 days in

the year. The recalculated dates in this chapter match the corrected Eastern Mediterranean chronology, with some exceptions, which can be attributed to the attitudes of the Maya to the very concepts about time, and which will be explained below.

Katun 11-Ahau: History Starts

Bishop Diego Landa destroyed hundreds of Maya glyphic manuscripts in the 16th century AD, but it is likely that many remained, for even 100 years later missionaries were reading prophecies from original bark books (as, for example, the Spanish missionary Avendaño, in AD 1696).

The *Chilam Balam* books had a different status than the original bark books. Written by the Maya in European notebooks, in the European script, but in the Mayan language, these formed a greatly condensed record of the histories, rituals, and prophecies from the time before the invasion of the Spanish in AD 1517. It was an efficient method of keeping in touch with the past. The books were kept from the Spanish priests, recited at village meetings, and copied and recopied for 300 years. The readers knew the context of the information of these notebooks, although likely this was slowly lost over the next few hundred years. [\[note 2\]](#)

The *Chilam Balam* books all insist that the cycle of history starts with Katun 11-Ahau. Although Maya history recorded on monuments does not reach back before AD 300 or 400, their calendar was in universal use throughout Mesoamerica probably since 600 BC or earlier, and the predecessors to the Maya, the Olmecs, were probably responsible for the concept that history started with Katun 11-Ahau. Roys claims that this is so because the first day of Katun 11-Ahau starts with the day 1-Imix which is the first day of the 260-day Tzolkin cycle of naming days. But in the grammatical construction of Indian languages, a date (or Katun) does not exist until it is completed, which is why Katuns are named after their last day, not the first. [\[note 3\]](#)

My thinking initially was that the reason for starting history with Katun 11-Ahau is that the ending of a Katun 11-Ahau might have coincided with the calendar change in 747 BC, when calendars were changed worldwide, and in many cases initiated. It turned out that this guess was correct, a Katun 11-Ahau **ended** in 747 BC, in fact, on February 28th. This is the ending date also for the Roman annual calendar. And also the day before the start of the "Era of Nabonassar" used in the Babylonian Chronicles, and presented by Ptolemy in

about AD 150 for his list of Kings of Babylon and his list of eclipses. This is the date that the year changed from 360 days to 365.25 days. The Babylonian day started at nightfall, so that the era actually started on February 27th.

All of this is not just a coincidence. The odds of a single 20-year Katun, out of a cycle of 13 Katuns, ending in the year 747 BC, is small. That it should fall exactly on the date before the start the "Era of Nabonassar" is astounding. That this date would be represented by the Long Count of 6.0.0.0.0 is beyond belief.

Considering that the nova event of Venus in 685 BC also coincides with a Katun period of the correct name, I thought that perhaps some faith could be placed in these Katun dates, although I expected much of the information to be out of place. In fact, as I read through the text, I realized that most of the very old events were arbitrarily assigned to Katun 11-Ahau. I did not initially expect any of the other celestial events to be placed in Katuns which corresponded with known dates from the Middle East. But at the conclusion of investigating this text, it looked like all except two of the events were correctly placed. One was, I suspect, a transcription error, and the second was a deliberate change made during classical times (or earlier) to make the date of an important event coincide with a certain day-name of the Tzolkin (July 25th).

Many of the events recorded in Book 10 of the *Chilam Balam*, however, seem to be in the wrong order in going from one event to the next. It is as if some canonical source was misread, perhaps reading the left page before the right page from a book meant to be read from right to left (which, in fact, was the case for the Maya codexes). It would seem that in some cases only the information of single sentences occupied a full page of the original. That suggests an illustrated codex with an appended text in glyphs.

Additionally, it looks as if the author had accessed three or four separate original sources, which do not match in format, although none of the events are repeated. I will indicate the suspected shifts from one source to another where I have become aware of them. [\[note 4\]](#)

As you can imagine, the *Chilam Balam* represents a giant sequencing puzzle, both because of the obscure sequencing of history and because of a few errors which were incorporated by the original copyist. It took me six months to get through the text initially, and I had to make a number of changes afterwards. Often a resolution of textual elements involved attempting to place myself in the position of a copyist who is earnestly trying to make sense of a document which related events from thousands of years ago.

But thanks to a cultural continuity, we can identify elements which were actual and which (from our point of view) had shifted to become metaphors. The greatest help in this was reading Linda Schele and David Freidel's book *Maya Cosmos* (1993) prior to tackling the *Chilam Balam*, for the authors identify many elements from the Classical Maya era, 1500 years ago, which still appear among the contemporary practices of Maya shamans. (I also was involved as film equipment consultant for Peter Thompson's film *The Shaman of Oxkintok* about Don Chabo, a Maya shaman, in 1992 -- 1993, but known as *El Movimiento* when completed in 2001.)

In *Maya Cosmos* Schele and Freidel were eventually forced to consider the stars as a major element in Maya cosmology and show that this is part of religious practices of the Classical era and is still in current use. Thus when I ran into the "timbers at the crossroads" and the "precious objects," the equivalent in our terminology instantly jumped to mind, and without question. It has likewise been shown by Schele and Freidel that many concepts and ideas, it would be more proper to say "images," of the 16th century AD Guatemalan *Popol Vuh* were already being depicted in Classical times.

In the following I have kept the *Chilam Balam* text in the same order as it exists, with a few alternate readings by Bolio (see below), and some footnotes by Roys, added. That makes for a thoroughly confusing sequence, but I thought it more important to follow the original order of the text, rather than to make repairs which would only add to the confusion. As a reader you will thus be treated to constant interruptions, where events are taken up, interrupted by other unrelated events, and continued a paragraph or two later. Overall, however, the *Chilam Balam* sticks to a consecutive series. That will help.

The specificity of Roys's translation can be compared with a more recent translation by Suzanne D. Fisher, made from an earlier translation into Spanish made in 1930 by Antonio Mediz Bolio. Bolio has the distinction of speaking one of the Mayan languages, but this earlier Spanish translation by Bolio seems to be a composition based on the assumption that the original was written in similes and metaphors.

In a preface to a translation of Bolio's text into French, J. M. Le Clézio wrote, "*At times ... he seems to prefer the beauty of the expression to the literal meaning, which results in a profoundly emotional and poetical version.*"

At times the Fisher translation after Bolio parallels the translation by Roys and is much more readable, but often it is altogether different. Thus the sentence I

quoted above, about the Sun:

"Then there came great misery, when it came about that the sun in Katun 3-Ahau was moved from its place for three months. After three years it will come back into place in Katun 3-Ahau."

... is rendered by Bolio as:

"That is what is coming, when three moons have fallen in the time of the 3-Ahau Katun, and after three portions of years, trapped within the 3-Ahau Katun; ..."

Bolio, in the text shown directly above, assumes that the original is a comment on the sense of a previous sentence, which speaks to the coming of an "unending bitterness." Roys assumes the sentence starts with the mention of the "great misery" and places the agent in this phrase. Both the sense and the punctuation have been rendered completely differently.

At cause is the original text, where there is no indication of the starting and ending of sentences or paragraphs. Both Roys and Bolio had to guess at the implied punctuation. Bolio has the advantage of speaking Mayan, and often he has polished the text, but I too feel he has frequently lost the specific details. In Roys's translation, on the other hand, the tense and number of the verbs and nouns often bounce back and forth unpredictably. I will use Roys's text and augment it with the Bolio text as needed.

A copy of Book 10 is available [\[here\]](#) which collates the text by Roys with some rephrasings by Bolio, some of the material from Roys's footnotes, and a few additional insertions, but without my extensive comments. I have added the numbered Katuns. The 16th-century scribe started in Katun 11-Ahau and continued in order through Katuns 11, 9, 7, 5, [8, 2], 3, 1). After Katun 5-Ahau, two even-numbered Katuns are inserted, Katun 8-Ahau and 2-Ahau. The sequence of even-numbered Katuns is skipped, but the text ends in repeating Katuns 13-Ahau, 11-Ahau, and 9-Ahau.

The Author's Introduction

Book 10 of the *Chilam Balam* is the history of the "second creation" of the world, and the appearances of the planetary Gods. With some exceptions, the information never deviates from the purpose of this presentation. The text is

introduced by the original copyist with a note of urgency. The information is presented in the context of the new Christian God:

"It is most necessary to believe this. These are the precious stones which our Lord, the Father, has abandoned. This was his first repast, this wine, with which we, the ruling men, revere him here."

"Very rightly they worshipped as true gods these precious stones, when the true God was established, our Lord God, the Lord of heaven and earth, the true God."

This section of the *Chilam Balam* is distinct from all other texts of the books in offering an introduction. The comment about the "precious stones" suggests that stones were used to represent events and represent the gods. The first Christian missionaries also told that the Maya "worshipped stones." The author here turns the "stone worship" of the Maya into a misdirected earlier effort. It might also be suggested that the Maya knew very well that the planetary Gods which were worshipped were indeed nothing more than large rocks. The close passages of Mars would have demonstrated that. In Book 11, "The Ritual of the Angels," a Maya author has the Christian "God the Father" emerge from one of the "holy stones" seen in the sky. Bolio in that case interprets "tun" as a "holy stone." It might serve the reader to think of "tun" or "stone" not as material ("made of stone") but as a shape, form, or container. [\[note 5\]](#)

The author continues with the introduction: (I have broken up Roys's long paragraphs throughout.)

"Nevertheless, the first gods were perishable gods. Their worship came to its inevitable end. They lost their efficacy by the benediction of the Lord of Heaven, after the redemption of the world was accomplished, after the resurrection of the true God, the true Dios, when he blessed heaven and earth. Then was your worship abolished, Maya men. Turn away your hearts from your (old) religion."

"(This is) the history of the world in those times, because it has been written down, because the time has not yet ended for making these books, these many explanations, so that Maya men may be asked if they know how they were born here in this country, when the land was founded."

NOTES:

- () insertions by Roys in the translated text,

- [] insertions are by me from footnotes or from Bolio.

The writer acknowledges that his sources are other books. He then proceeds to list events, starting, naturally, with Katun 11-Ahau, where the cycle of all history is understood to start. The first few lines relate events which happened before 4077 BC and in 3147 BC. He then progresses through additional Katuns in turn, but only up to Katun 3-Ahau, which Roys thinks is an interpolation (in this particular version of the *Chilam Balam*). He then very briefly speaks of the miseries of Katun 13-Ahau and touches again on Katun 11-Ahau and Katun 9-Ahau as a recitation of more recent history. This is followed by portraits of Saturn and Jupiter as the two ruling Gods. Here is a list of topics, in brief outline:

- Katun 11-Ahau - The Bee Gods and The Thirteen; the fire, the rope; the capture of The Thirteen by The Nine; Nine-Lives escapes; flood and fallen sky; four trees (the period of 4077 BC to 3147 BC).
- Katun 9-Ahau - Ten-Sky appears (3067 BC to circa 2700 BC);
- Katun 7-Ahau - Uuc Chek-nal comes; Earth and Heaven touch (1492 BC).
- Katun 7-Ahau - A new world created (after 1442 BC).
- The "third creation," the Moon rules all of Earth (wrong Katun?).
- Katun 2-Ahau: Jupiter seated, gravediggers, crossroads revealed (2349 BC).
- Katun 8-Ahau: fire on high (2150 BC).
- Katun 3-Ahau - The Sun leaves its path (685 BC).
- Katun 13-Ahau - Misery, foreigners.
- Katun 11-Ahau - Nine-Lives shows (776 - 747 BC).
- Katun 9-Ahau - Nine-Lives descends, flowers (747 - 727 BC).
- Fall of the Absu (placed in 2250 BC, wrong date).
- The rulership of the Thirteen.
- The rulership of the Nine.
- The return of Kukulcan.

At first I was not always certain of how some of the descriptions translated to the chronology I had set out earlier in these pages. But allowing for the author's error in reading the order of the original texts, the insistence of sorting events by Katuns, and the additional quirk of failing to note repeating events, all of it eventually fell into place. What I am certain of is that very little is metaphorical. Much of it is simply descriptive, even though the language is one of the Maya's environment of stones, trees, flowers, and plants.

The distinct advantage to us of the *Chilam Balam* as a source for a history of the "Era of the Gods" and the period following, is its insistence, based in the original Mayan language, of describing actions rather than static states. In contrast, Egyptian or Mesopotamian sources deal almost entirely with static states.

The Thirteen: Saturn

The following are the first lines. The author starts at the very beginning, the first clear sight of Saturn in 4077 BC. I am translating "Oxlahun-ti-ku" as "The Thirteen" on the basis of Roys's footnotes. From the remaining context it is obvious that "The Thirteen" is Saturn, just as "The Nine" will turn out to be Jupiter. Together with the next few lines, we have here a condensation of the 3000 years of history of the Saturnian apparition to a few lines:

"It was (Katun) 11-Ahau when the Ah-Mucenca [the bees] came forth to blindfold the faces of the Oxlahun-ti-ku [The Thirteen]; but they did not know his name, except for his older sister [Uranus?] and his sons [the other planets?]. They said his face had not yet been shown to them also."

Only after reading ahead did I realize what was happening here. First, about the bees. "Ah-Mucenca," Roys relates in a footnote, are supernatural bees or bee-Gods. In conjunction with the following lines, these are likely to be satellites of Saturn, buzzing around the hive like bees. (These bees, and the hive, occur elsewhere in the *Chilam Balam* when much earlier history is being discussed.)

[\[note 6\]](#)

"Oxlahun-ti-ku," Roys notes, *"literally the Thirteen Gods, are probably the gods of the thirteen heavens of the Maya cosmos, but they are usually treated as a single god."*

I would suggest that "The Thirteen" is Saturn, represented by the seven most prominent satellites which could be visually distinguished because of the proximity to Earth, plus the count of Uranus, Neptune, Saturn itself, Venus, Mercury, and Mars (a count of six). All of these planets are recognized on other pages of the *Chilam Balam* as part of the stack of planets seen since long before 10,900 BC, and noted also in the *Popol Vuh*. If Uranus is his sister, then perhaps the other planets above and below Saturn would be his sons. [\[note 7\]](#)

"The Thirteen" may also represent (as Roys notes) the thirteen levels of heaven imagined to be located physically above the Earth in the Maya cosmology, although I think this is likely a more recent addition to the theology. That the upper reaches of the sky are assigned to Saturn would follow from the fact that Saturn had stood above the Earth for six thousand years. On the other hand, Jupiter (known as "The Nine") is assigned to the nine levels of the Underworld, for he was only seen on the ecliptic, and thus dipped below the Earth each night.

The arcane text about "not knowing his name" may relate to the fact that a theology of these Gods was never adopted by the Maya. It has been noted (Schele and Freidel) that the earliest archaeology of the Pre-Classical Maya shows no signs of the Gods of the (later) Classical era, but I am not so sure of what that means. It is clear (at least to me) that by classical times the Saturnian planets were incorporated into the theology. A look at the "altars of the cross" at Palenque, erected in circa AD 690, show that the concern was entirely with the most recently active planets: Jupiter, Venus, and Mars. At this time Saturn had been reduced to an old man. [\[note 8\]](#)

Similarly the concern with directional trees (see the text further below) has been found as four trees set in sockets at the top platforms of the earliest temple platforms of the Maya dating back to 200 and 100 BC. The iconography of the four trees first shows at Olmec La Venta, circa 650 BC, carved as four small sprouts surrounding a central figure, although archaeologists tend to identify the four sprouts as corn seedlings. In terms of the *Chilam Balam*, this would signify a continuation of Gods, for the directional trees are part of a mythology or history stretching back to 3100 BC -- some 1500 years before the Yucatan was first populated.

It should be recognized that the Maya, like the surrounding peoples of Mesoamerica were "converted" at some point after 600 BC to the theology expounded by a set of graphical books which were obtained from centers in the Valley of Mexico, Veracruz, or Oaxaca. This was absolutely convincing, since the books so obtained matched their own recollections and records. I'll expand on this in following chapters.

Back to the bees: I assume here that "they" means the sons and sister, not the bees. Thus Saturn was only revealed after all the other members of the group were identified and counted. This is consistent with the information of the *Popol Vuh*, except that Saturn itself is counted, even if this never really happens in the

Chilam Balam. Bolio assumes that The Thirteen did not know the name of the Bee God (which he has as singular).

The "older sister" is likely to be the much larger Uranus, which was involved with this configuration from the very start, and would look to have long hair because of the outpouring of plasma from one from its horizontally located south magnetic pole, where the other end (other pole) only showed a beak-like plasma in glow mode.

The smaller outpouring at the other pole (the north magnetic) is not identified as a bird beak, as in European Upper Paleolithic and early Neolithic iconography. It must have been identified as a nose of the figure. It may account for the facial disfigurement practiced by the Maya.

The "sons" would be the other planets which traveled with Saturn. If these, together with Saturn, add up to six, then Venus would be included among them. Thus we can date this description to after 4077 BC, since Venus would not show up until after 4077 BC, although the wording here seems to be speaking of an earlier time.

That the Ah-Mucenca bees blindfolded Oxlahun-ti-ku, Saturn, is not as curious as it might seem at first. The writers of the *Chilam Balam* had determined this from an inspection of a series of books of ancient history, represented entirely by graphical images. It suggests a coma occluding Saturn, and perhaps the other planets, which, by the way, other peoples have noted also.

The text continues with the obvious, declaring that this time is already after the creation of Earth, that is, the world. I should point out that the Olmecs were certain also of an earlier creation, a "first creation," which is detailed in Book 11. The purpose of the book considered here (Book 10), obviously is to provide the history of the Gods which were honored in Classical times, and thus will describe the "second creation" (of 3147 BC) and the "third creation" (of 2349 BC). Other pages or books of the *Chilam Balam* will also separately describe the "first creation" and again the "third creation."

"This was after the creation of the world had been completed, but they did not know it was about to occur."

Strange as the tense of this sentence is, it seems to say that something "unknown" preceded the existence of Oxlahun-ti-ku, Saturn. This is not unlike the myths of other people where we see "creation" proceeding from a misty

chaos in the sky. The *Popol Vuh*, the story of the ball-playing twins, written in Guatemala at about the same time as the composition of the *Chilam Balam* books, starts creation with the sense of an undifferentiated mass of water or mist as the "chaos" found in other creation myths elsewhere in the world.

The blindfold stretched across the face of Oxlahun-ti-ku, Saturn, is possibly the creation of the rings in 4077 BC. At that time the satellites (the Bee Gods) would be clearly seen only if Earth were mostly below Saturn at that time. (The problem with these texts is that we have no idea of what times in the past these snapshot images refer to.) To see the rings as a blindfold would place Earth nearly laterally with respect to Saturn. That also allows all the associated planets to be seen. If this description were presented from sources in Mesopotamia or Egypt, I would immediately suggest that the "creation of the world" as mentioned above would be in reference to the "land" of Saturn -- Upper Earth. But I never get a sense of the stupendous object in the north skies being equated to anything other than a god-person. (With the exception of an equation of directional bees and a bee hive or pot of honey at the island of Cozumel in Book 11 of the *Chilam Balam*).

As I mentioned earlier, it is also possible that the scribe here is relating the coma which appeared or was seen after the 2500 years of shadow of the Younger Dryas lifted. This would suggest that the bees were seen at that time. The coma would have been in place since 10,900 BC and lasted to 4077 BC. The line of text about the blindfolding is, at any rate, a curious statement. But it is also not at all untypical of the *Chilam Balam* to sum up thousands of years in a single sentence.

"Then Oxlahun-ti-ku [Saturn] was seized by Bolon-ti-ku [Jupiter]."

"Then it was that fire descended, then the rope descended, then rocks and trees descended. Then came the beating of (things) with wood and stone."

Jupiter (Bolon-ti-ku, The Nine) is introduced here, but his mention seems out of place (Jupiter appears again a few lines later). It is also possible that we are being notified of the agent involved in the sudden nova event of Saturn in 4077 BC. It is possible that an earlier electric collision with Jupiter started the mass expulsion and explosive plasma discharge of Saturn, although I doubt it.

- *First the fire, then the rope* -- This is in the correct order. After the extinction of the plasma flow in arc mode, Saturn would have switched to

continue the discharge in glow mode -- the "rope." The "rope" will continue into post-Classical times as a symbolic connection to heaven which delivers grace and other celestial dispensations to the Maya. The concept is still in use today among Maya shamans.

I have not made much, in the text of previous pages, of differentiating the extreme arc mode plasma discharge from the glow mode plasma, since there is no indication of how long the arc mode plasma lasted. Both are recorded in the petroglyphic records from remote antiquity, although apparently most, if not all, the petroglyphs are in reference to an earlier south polar column.

- *"Trees and rocks"* -- Here I am again beset by the fact that repeatedly the order of things seems reversed in lines which follow each other. The "trees" is a phenomenon associated with the plasma instabilities during the time of the "descent of fire," that is, a plasma stream in arc mode (but also associated with high-level glow mode). The "rocks" are also likely a plasma stream disturbance but could also be the descent of Mars and his followers during the lowering of "the rope." Of course I am reading these lines as sequential because they appear in the text as one following the other. But a story with an orderly sequence in time was never a strong concern of the Mesoamerican languages. Richard Luxton, in *The Book of Chumayel* (1996), has "sticks" for "trees."
- *"The beating of things with wood and stone"* -- The "wood and stone" appear again later in the text in a description of the rulership of Saturn, and obviously refer to Uranus as the wood and Venus as the stone. Both might be seen as flailing about Saturn if the rotational axis of Earth and Saturn did not line up. Saturn would have been seen revolving (or rocking) in the sky. Vedic sources state that Saturn "rotated without cease." The *Chilam Balam* will address this perambulation later in the text, in a description of Saturn's rulership. What we have here, however, is a description of the visual effect of the rotational axes of the two planets not lining up. The "things" being beaten are the rings which would seem to wobble as seen from Earth. In the *Popol Vuh* the wood and stone are the magical gardening tools of Hunahpu and Xbalanque. [\[note 9\]](#)

In Classical times rulers are shown holding a "Venus scepter" -- a puppet-like head crowned with a jester headdress of three points and with the tail of a snake. The spikes of the headdress were recorded at other times, as in this example, from the Tang dynasty of China:

"On the morning of March 18, [AD] 904, Venus was observed near the Pleiades blazing like fire. The next morning, to observers, Venus appeared to have developed three horns, somewhat resembling a flower, and then began to tremble and shake."

-- Charles Raspil *Planetary observations of the T'ang* (1994)

The three spikes are a cone of plasma extending from the pole of a planet, shaped sort of like a chalice. Only the outer edges of this shape are seen, where the plasma is visually more dense in profile. The third spike is a stream of dense plasma central to this. The plasma flowers will show mainly at the north magnetic pole. The problem with this reading of the "three horns" from the T'ang is that Venus does not today have a magnetic field which would be needed to support such a display. [\[note 10\]](#)

The "wood," is Uranus, seen besides Saturn, and is probably represented by a jade god-face hung by a chain from the rear of the belts of the rulers in Classical times. Notice that many features of the Saturnian Polar Configuration, such as Uranus in this instance, are differently interpreted in different instances in this text, an indication that the scribe may have been looking at illustrations which were not captioned.

The Nine: Jupiter

The next line again introduces Jupiter. Saturn is attacked by Jupiter, so we are now in 3147 BC:

"Then Oxlahun-ti-ku [Saturn] was seized by Bolon-ti-ku [Jupiter]."

This line exactly repeats one of the lines above, which I noted as being out of place. If so, it is an old transcription error.

"Then Oxlahun-ti-ku [Saturn] was seized, his head was wounded, his face was buffeted, he was spit upon, and he was (thrown) on his back as well."

"After that he was despoiled of his insignia and his smut."

About the above text Roys notes:

"Bolon-ti-ku, or Nine Gods, appear to be treated as one god. We find them represented in the inscriptions, and it seems likely that they represent the

nine underworlds and correspond to the Nine Lords of the Night of the Mexicans."

"The inscriptions" mentioned by Roys are probably the *Dresden Codex* and other glyphic books which had come to light before 1930. The Nine Gods is Jupiter plus its visible satellites (eight seen before the 20th century AD). [\[note 11\]](#)

Jupiter rises in the east from the Caribbean, sets west in the Pacific, and travels through the sky almost overhead because the Yucatan is at a latitude of 18 to 20 degrees. Jupiter thus seems to travel in a circle over the Earth and underneath. The Maya conceived of the world as floating on water, being aware that they were bordered by the Pacific and almost surrounded by the Caribbean. And they specifically noted water welling up from below in the subterranean limestone caves and surface cenotes. The region below ground became for them the Underworld, as nine levels below ground, each level controlled by one of nine Gods. See also my notes further below on the Absu, the "House of Nine Bushes."

- *"Oxlahun-ti-ku [The Thirteen] was seized"* -- Saturn came into close proximity of Jupiter, 6 to 14 million miles (10 to 23 million km). This actual close contact between Saturn and Jupiter would have lasted very little time. The shock of the electric forces was attractive because of the much greater positive charge of Saturn. This is how Saturn was "seized" by Jupiter. The attractive force would have stopped very quickly with a change in the induced voltages, the equalization due to electric arcing, and the separation of the planets. "Seized" also likely describes an extension of plasma as lightning reaching from Jupiter to Saturn.
- *"... his head was wounded, his face was buffeted"* -- This is the initial plasma interaction, probably in large sheets of plasma impinging on Saturn in visible glow mode, or as contacts in arc mode. Jupiter at this point, moving beyond its original orbit at 0.7 AU, was in need of electrons, but Saturn still had its positive charge and needed electrons even more.
- *"... he was spit upon"* -- As Saturn distanced from Jupiter, the plasma connection initiated by Jupiter would have switched to long-distance plasmoid strikes. It might have looked like spittle, since these would take time to travel through space. Egyptian legends make this image into the sperm of Seth (Jupiter) and Horus (normally Mars, but here probably Saturn). When some of the predynastic "kings" of Egypt take on names like "Crocodile" and "Catfish-Chisel" we are seeing similar interpretations from

the other side of the globe. Plasmoid bolts look like catfish or like crocodiles with open jaws.

- "... *he was (thrown) on his back as well.*" -- At first the spectacle would have been viewed in the north skies, since Earth was still below Saturn by some 3 million miles (5 million km), and probably over 4 million miles (6.5 million km) below Jupiter. But as Earth was released to travel its own path around the Sun, the orbit of Earth would be lifted to have the Sun again be one focus of the orbit. At that time the perspective of the two battling planets would have changed and they would have been seen on the ecliptic with Saturn viewed edge-on -- equivalent to having been thrown on his back.

The earliest Egyptian mention of Osiris and the account of his death (Saturn here) is found among the fifth dynasty pyramid texts of Unas (2345 BC), where it is related that Osiris died by falling on his side -- at the river bank. This is not the Nile river, but the river of the ecliptic.

- "*After that he was despoiled of his insignia and his smut.*" -- "Smut" is the face paint used by priests during a period of fast and consecration, Roys notes, although Bolio reads it as plumage, which is perhaps correct, as detailed below.

Roys has extensive footnotes on "the despoiling of the insignia," relating the insignia to "something held in the hand" -- a scepter carried by rulers, in the form of a dragon or manikin with a snake tail. The name of the "canhel" scepter translates as "dragon" or "serpent." "Something held in the hand" is most likely Venus connected to Saturn with a plasma trail. This is the scepter held by Maya rulers. This shows up also on the predynastic tags of grave goods of Egypt as the cudgel wielded to strike enemies. Some writers have simply equated "canhel" to Kukulcan, the plumed serpent Quetzalcoatl. Which is correct.

Bolio translates the line as:

"And their [The Thirteen's] Serpent of Life, with rattlers in its tail, was stolen and with it was taken its quetzal plumage."

The "quetzal plumage" of Bolio comes close to referencing the "insignia" to Quetzalcoatl -- the "feathered serpent" of the Mexicans, known as Kukulcan in Mayan, and identified as Venus. The "Serpent of Life" scepter is Venus, as Schele and Freidel have noted. [\[note 12\]](#)

The Maya purposely avoided any reference to Quetzalcoatl (or Kukulkan) in the *Chilam Balam* books, for the Spanish priests were on the lookout for references to Quetzalcoatl, whom they considered as possibly the chief object of idolatry among the Maya, based on their experience with the Aztecs. Other books of the *Chilam Balam* specifically blame idolatry on the Itza who had moved into the Yucatan 800 years earlier and at some point supposedly brought the worship of Quetzalcoatl from Tula. But Venus (Kukulkan) had already been part of the Maya sacred iconography in Classical times as the Vision Serpent and the double-headed serpent bar. [\[note 13\]](#)

Nine-Lives: Mars

Next, and still in Katun 11-Ahau, we are introduced to "Nine-Lives" -- actually, the first "Nine-Lives." This paragraph is clearly out of place for the text describes events before the close of the "Era of the Gods" in 3147 BC, which end was related above.

"Then shoots of the yaxum tree were taken. Also Lima beans were taken with crumbled tubercles, hearts of small squash-seeds, large squash-seeds and beans, all crushed."

"He wrapped up the seeds (composing) this first Bolon Dzacab ["Nine-Lives," Mars], and went to the thirteenth heaven."

"Then a mass of maize-dough with the tips of corn-cobs remained here on earth."

"Then its heart departed because of Oxlahun-ti-ku [The Thirteen, Saturn], but they did not know the heart of the tubercle was gone."

Roys translates "Bolon Dzacab" as "nine generations" and suggests it means "forever." Bolio translates "He who is eternal." Fisher's text has a parenthetical insertion which reads, "Yax Bolon Dzacab -- Great Nine-Fertilizer." "He," at any rate, seems to refer to "Nine-Lives," Mars, not some other undefined God. Schele and Freidel also identify Yax Bolon Dzacab as God GII of the Palenque Triad, which is Mars. In footnote 11 to Chapter 2 of *Maya Cosmos*, Freidel and Schele identify (on a somewhat different matter, and as a verb form) "Bolon Tz'acab" as possibly meaning "nine manifested" which makes a lot more sense.

- "... *this first Bolon Dzacab*" -- Without a doubt Nine Lives is Mars. Like Horus of the Egyptians, who is called "the first Horus" when he is listed among the first gods, Mars is here called "this first Bolon Dzacab." He is also called (or implicitly regarded as) "eternal" for he will reappear for ages to come. Although the Sumerians and Egyptians counted repeated visitations of Mars as repeated incarnations, the Maya neglect repeated visits in the record of the *Cgilam Balam*, both for the period before and after 3100 BC and for the 8th and 7th century BC. It is likely that the "nine" of "Bolon Dzacab" should tell us that this event happened nine times -- one more than the Sumerian "kings before the flood." For the Mesoamerican writer there was no reason to tell of repeated visits of Mars. Additionally, it is perhaps the nine risings up to Saturn which are counted here, not the eight lowerings, as in Sumer. (The *Dynastic Chronicle* from Babylonia lists 9 kings before the flood, however.) [\[note 14\]](#)
- "*Then shoots of the yaxum tree were taken ... etc.,*" -- and other assorted small granular matter. On the one hand, the look of a planet wrapped in squashed beans and seeds would be the look of the lower half of Mars which is pockmarked with craters. But I will suggest another understanding further below.
- "*Then a mass of maize-dough with the tips of corn-cobs remained here on earth.*" -- This obviously has reference to the "creation of humans" events recorded in the *Popol Vuh* and other sources, when humans were fashioned by the Gods out of maize dough. Bolio makes it read as, "*And then his [Mars's] skin and the tips of his bones fell here on the land.*"

If what is described here records the descent of Mars before 3147 BC, then the "skin and bones" would represent the massive uprising of water in the North Atlantic or the inverted dome of plasma (at the same location) which is featured as a mountain in other creation myths. The Yucatan is located ten degrees further from this site than Mesopotamia or Egypt. The clouds reaching beyond the stratosphere, would easily have looked like a mountain of corn mash. This is also the location of the "Seven Caves," which repeatedly show up in other Mesoamerican creation myths down to the time of the Aztecs (as well as the Incas), where humanity originated. [\[note 15\]](#)

- "*Then its heart departed because of Oxlahun-ti-ku [The Thirteen].*" -- Both translators have the heart of Mars depart for the highest heaven. Bolio has: "*... because the Thirteen gods [Saturn] did not want his heart and seed to be*

gone from them." This is the departure of Mars from Earth, and seemingly composed of the image of Mars climbing up the plasma stream in the era before 3147 BC. If this is so, then the "shoots of the yaxum tree, etc.," mentioned above, might also represent nodes in the plasma stream which seem to follow Mars on the returns. This was noted by Talbott at the 2001 conference.

Note that the Mars events described here are out of place. The return of Mars to Saturn happens before 3147 BC, not afterwards. In fact, the visits of Horus which the Egyptians experienced after circa 3050 BC are missing here, although they are described further below.

The close of the drama of 3147 BC is the second battle described by Hesiod. This probably took place within 200 years. The four planets retreating from the inner reaches of the Solar System had to move through the asteroid belt, with the consequence that asteroids were "attacked" with plasma strikes -- with plasmoid bolts by Jupiter, as would be likely under the circumstances of enormous amounts of ionized material and increasing amounts of fine silicate dust in the ecliptic at the location of the asteroid belt -- formed by the plasmoid bolts of Jupiter (and the others). Plasmoids can travel millions of miles through space.

"After that the fatherless ones, the miserable ones, and those without husbands were all pierced through; they were alive though they had no hearts. Then they were buried in the sands, in the sea."

Roys notes that two other *Chilam Balam* versions read "fell to pieces" for "pierced through," an expected breakup of asteroids, although it is difficult to imagine how this could have been seen from Earth. Perhaps comas greatly enlarged the sizes of the asteroids. I doubt if the "fatherless ones" might have been asteroids large enough to be distinguished. That too is hard to believe, except that when individually surrounded with a coma they could perhaps be seen from Earth. Alternately it might refer to Saturn, Neptune, and Uranus receding through the asteroid belt.

The "sea" is the whole of the southern sky below the equatorial, identified as the Absu by the Sumerians and the Duat by the Egyptians -- alive with glowing moving concentric wavy rings of particulate matter looking like a sea.

The "sand" (strand) is then the edge of this sea, or the glowing ecliptic, (which dips into the Absu for part of its length). The ecliptic would start to glow as the

dust of plasma contacts from Jupiter (and the three other giant planets) started to accumulate. It was yellow like sand and called the "Yellow Road" in China.

"Have you no fear of me?" says the Lord; "will you not shudder before me, before me who made the shimmering sand to bind the sea, a barrier it can never pass? Its waves heave and toss but they are powerless; roar as they may, they cannot pass." -- Job 5:22

From what God has just said, it looks as if the last ring of the Absu was yellow or buff colored and understood as a strand -- a barrier between the celestial sea and the sky above it. Both the Bible and the Quran identify the barrier as a strand -- a beach.

"There would be a sudden rush of water when the theft of the insignia of Oxlahun-ti-ku [The Thirteen] occurred."

The narrative has backed up a page. This is the massive worldwide flood which I have placed in the year 3147 BC in the narrative, the flood of Gilgamesh (as I happened to have named it). It would, in any event, happen immediately after Earth was released from the gravitational hold of Saturn. Again we have here, as above, a dislocation of the order of events, as if, as I have suggested, the folio pages of a book were read in the wrong order.

"Then the sky would fall, it would fall down upon the earth, when the four gods, the four Bacabs, were set up, who brought about the destruction of the world."

Here the "fallen sky" is related to the time directly after 3147 BC. I presume that this mention is not more of the "rush of water," but represents what the Olmecs understood as a collapse of the sky above Earth, perhaps a darkened sky as later recollected from 2193 BC when Akkad and Egypt both collapse economically. This, too, seems out of place.

The four Bacabs are the gods of the cardinal points. They will hold up the sky, and set up four trees holding up the sky. These trees now hold up the dome overhead and the northern stars -- something perhaps never seen before. The following text will also repeatedly note that the four trees are set up as "a sign of the destruction of the world."

The First Four Trees

The text here launches into a description of the four colored trees which are set up at the cardinal points, each surmounted with a bird (of the same color), and also a green central tree. We should welcome this side-trip into geography. Mapping the Earth is a very central element to the Mesoamerican (and American Indian) conception of the world, and as a result we have details not available in other parts of the world. Besides, the "trees" were absolutely huge -- the largest entity ever seen in the skies.

"Then, after the destruction of the world was completed, they placed (a tree) to set up in its order the yellow cock oriole."

"Then the white tree of abundance was set up. A pillar of the sky was set up, a sign of the destruction of the world; that was the white tree of abundance in the north."

"Then the black tree of abundance was set up (in the west) for the black-breasted piçoy to sit upon."

"Then the yellow tree of abundance was set up (in the south), as a symbol of the destruction of the world, for the yellow-breasted piçoy to sit upon, for the yellow cock oriole to sit upon, the yellow timid mut."

"Then the green tree of abundance was set up in the center (of the world) as a record of the destruction of the world."

My first inclination was to suggest that these trees were versions -- real or not -- of the tree seen in the north, connecting Earth with the Saturnian planets. Saturn at the top would look like a bird, for the equatorial outpouring of plasma (the rings) of Saturn (before 3147 BC) might have looked like the plumage of a bird. The ball-shape of Venus connected with a long thin swirl to Saturn (as in the Egyptian "Eye of Ra") could pass as the head of a bird (as could Uranus). Additionally, the plasma connection had been seen as a tree at times -- a discontinuity of the stream with toroids forming at intervals along the stream. These would flatten and the edges would turn up, making the plasma stalk look like a plant, complete with leaves and a circular form at the top like a giant flower. Images of this strange plant are still shown on Sumerian seals of 2350 BC. But these trees are not mythological substitutes -- these trees were real.

When the tree of the north with Saturn on top disappeared after 3147 BC, another stellar bird appeared in its place, the constellation Ursa Major, with the location of the axis of the sky piercing the center of its body.

At a later date the Maya substituted the Milky Way for the "white tree" of the north. The Milky Way rotates through the night sky on a daily basis, starting off at different angles at different seasons, standing as a tree in the sky at the solstices, stretching from north to south horizon (more or less), and is described in Classical times. (See especially the book *Maya Cosmos* by Schele and Freidel.) The Milky Way does not intersect the bird form of Ursa Major, today or at any time in the past.

Others have suggested that these four directional trees are imaginary markers, implicit in the solstitial rising and setting of the Sun, some 25 degrees north and south of the east and west cardinal directions. That would be a ludicrous suggestion if it were not for the fact that creation ceremonies of Maya shamans today use these cardinal points.

However, in previous text I have already presented details of the four trees (under the subject heading of "The Return of the Axis Mundi"). The north and south trees can be described as plasma plumes. These match the descriptions of a bird at the top, as seen here in the *Chilam Balam*, and from illustrations of either a manikin or a ball at the end of the bent-over plume from Mesopotamia and Egypt. These are locations 20 degrees further north, and thus the plumes were even more bent over.

Initially, after 3147 BC, the white tree of the north was probably the most significant as well as the most prominent plasma plume. The first tree of the north is mentioned in the sculptures at Palenque, and held at equal value with the end of the previous epoch, and the appearance of the planetary Gods (their births) 700 years later.

In a footnote Schele and Freidel translate the inscriptions at Palenque for the event of 3112 BC (a year and about six months after the start of the present epoch), of "Wacah chan xaman waxac na GI," to "raised-up-sky north-eight-house GI," but also translate "Wacan chan" as "six-sky." The "raised-up-sky" is based on reading "Wacan chan" as "Wac ah chan." Schele also identifies "raised-up-sky" as the Milky Way. "GI" is Venus, but GI may be a typo for GI-prime.

If "wacan chan" is read as six-sky it would fit the practice in the *Chilam Balam* of prefixing celestial objects with the number of their appearances in 3000 years of history. "Six-sky" would have appeared six times, if the plasma column were to be generated with the six known changes in the Earth's orbit (3147 BC, 2349 BC, 2193 BC, 1492 BC, 747 BC, and 686 BC). But add the change in the electric field of the Sun of 685 BC, and there are seven. Or add the possibility of two

additional, but unnoted, changes between 2349 BC and 2193 BC, and there are 8 instances again, justifying a reading of "north-eight-house." North, as opposed to south, is a clear indication that we are here dealing with one of the two polar plasma plumes. This last is also better supported by the name given to the north tree at the ballcourt markers at Copan -- "Nine Successions." [\[note 16\]](#)

The "raised-up-sky" "north-eight-house" (also called "edifice") of Venus (GI) was dedicated a year and a half after the start of the current era, as retrocalculated by the Maya. It is within expectations that it would take perhaps a year to develop a plasma stream in glow mode in response to a change in the electric field surrounding the Earth's plasmasphere. The event is noted here (and in other records) because the raised-up-sky north-eight-house must have been much larger than anything else ever seen in the skies up to this point in time. It rose far above the previous polar location of Saturn. Seen from Mesoamerica, the Saturnian planets had hovered only some 20 degrees above the north horizon. "Saturn entered the sky," is noted because the planet had now moved (within a year and 9 months) across the sky and to the south. This had to be established first (in the Palenque text) because otherwise Saturn (God GI-prime of Palenque) would not have been able to construct his edifice. [\[note 17\]](#)

The Green Tree of the Center

About the tree which "was set up in the center," Roys writes, "This last tree was remembered by the Maya." The green celestial tree is the massive outpouring of plasma from the south pole of Jupiter, which I have noted in earlier texts. This was seen directly after 3147 BC, and again twice after Jupiter had passed through the asteroid belt, although at these later times the "mountain" had turned red. There is a fourth appearance in 685 BC. Note that "green" is not one of the directional colors of the Maya. This "tree" is not located at one of the cardinal points.

Initially the green tree of Jupiter with its lower plasma outpouring was seen between 3147 BC and 2880 BC, before Jupiter entered the asteroid belt. The mountain was topped by two owl-like eyes peering out from the top of the head of the coma, and a beak-like form below it. These were recorded in profusion at this time -- carved on the interior walls of barrows, as petroglyphs, and carved as amulets. Also notice that the green tree did not include a bird.

"Peratt ... identified the 'eye mask' as a 'low opacity torus' or thick ring, seen from a vantage point substantially off-axis, not too far from the plane

of the torus."

-- Talbott and Thornhill, *Thunderbolts of the Gods* (2004)

In the first hundred years or so after 3147 BC, the planet Jupiter is here the green tree of the center, whereas in later text Jupiter and its lower plasma expulsion are specifically noted as being red. Both the green and red colors can be generated by excited hydrogen ions at diffuse densities.

In Egyptian funeral imagery Osiris is almost always shown as a mummy wrapped in green. In early Egyptian iconography, and in phrases recorded in the Egyptian *Book of the Dead*, Jupiter is identified as Osiris (since the fifth dynasty).

Jupiter's green lower plasma expulsion is designated as the "tree of the center" because it was first seen in the east, and then moved, over the course of some months (in addition to nightly), past the south to diminish again in the west. The tree was obviously "in front of" the trees of the east, south, and west -- which did not move through the night or over the seasons. It was the brightness of Jupiter's coma that convincingly made it look as if it moved "in front of" the other trees.

The image of a tree of the center will reappear in later Olmec iconography, as seen at La Venta (circa 650 BC). There Jupiter, which developed another plasma outpouring in 685 BC, will be shown with a headdress of three flower-like petals, and legs composed of the open jaws of a crocodile. The crocodile form is the much more extensive plasma at the south pole of Jupiter (its north magnetic pole).

In much later Classical-era Maya imagery the "tree of the center" (at that time represented by the Milky Way) is frequently transformed into an upended crocodile with its jaws at the bottom and branches at the top sprouting from its tail. This is, however, a direct transcription of the imagery recorded by the Olmecs in 685 BC. The "centerness" of the "tree of the center" is denoted on Olmec stelae and inscribed celts with the addition of four sprouts or flames at the corners of the image -- representing the trees of the cardinal directions.

The East and West Trees

The east and west trees are very likely the toroidal belt of trapped particles (the Van Allen Belt) above the Earth's equatorial. Viewed directly overhead this

would be nearly invisible because the toroidal Van Allen belt surrounding the Earth would be viewed as larger and more diffuse -- it would disappear. Seen toward the east or west, it would be much more substantial. In the east and west the edges of the toroid would be seen to rise up from the horizon, as two parallel lines or a uniformly flat strip, with a circle shape at the top, looking not unlike the ball plasmoids at the ends of the polar plumes -- but without the three-pronged extensions. The east and west trees also did not move.

At the latitude of the Yucatan these would rise almost straight up into the sky. The repeated phrase of the text, "*set up as a record of the destruction of the world,*" suggests, however, that the trees appeared suddenly. This would certainly be true for the polar plumes, which would switch from dark mode to glow mode suddenly. This also suggests that the toroidal Van Allen belt also was in glow mode.



It is possible to take a hint that this might be so from Egyptian sources, as from an illustration of the *Book of the Dead*, where four lights or plumes with the required bent-over shape are carried by four persons. There is also a glyph, known as "Khet," depicting a bent-over plume coming out of the top of a form which is otherwise identified as a lamp or brazier. [\[note 18\]](#)

Implicit in the imagery of the four trees at the cardinal points is the fact that they were established to hold up the dome of the sky and the stars. They (or the four Bacab Gods responsible for the cardinal points) last unharmed through various destructions of the world.

The four trees were represented in Maya temples before the start of the Classical era in AD 300 or 400 as actual tree trunks socketed into the upper platform of temples (as at Cerros before 50 BC). At the close of the Classical era, in AD

900, these had been replaced by stelae (**te-tun** -- tree stones), now associated with the commemoration of the passage of time and with the celebration of various rulers.

By the time of the Spanish invasion the trees signify the geographical division of the land into four quadrants, and define the local domain of individual rulers. The trees also came to represent the winds from the four directions. The Gods of the four trees are all named after the God of rain, Chac. These Gods held up the sky in the form of an altar. Maya shamans today still construct these altar tables in "creation ceremonies." The imagery dates from the Olmec era, where gods appeared out of caves set below the edge of the 6-foot-high stone tables. The caves will be recognized as the dark doorway which normally appeared nightly against the equatorial rings. Although this had not happened since 2349 BC, the imagery remained to show up on altars at San Lorenzo. That the sky is intended with the table-like altars is obvious from the typical Olmec "sky monster" glyphs appearing at the top edge of some of the altars.

At Potrero Nuevo near San Lorenzo, two dwarfs hold up the altar like atlantes. The table edge is carved with cloud glyphs.

A listing of the directional trees, or the colors of the cardinal directions, occurs three times in the text. Each happens (as we shall see below) at a new creation, signifying a radical change in the skies, or a renewed sky.

Mesoamerica uniformly professed a belief in four creations, called "suns," except for the Aztecs who counted their own arrival at the Central Mexican plateau as the fifth creation. If the "creations" are equated with the appearance of the Sun, or a renewed Sun, then the "first creation" started in 10,900 BC, as the creation of the southern ball plasmoids, the "second creation" is the following period, ending in 3147 BC, and the "third creation" ends in 2349 BC, and a fourth may have been attributed to the 1492 BC. (This assumes the "creation" periods are consecutive.)

I am suggesting 1492 BC because it is the third time the trees show up. The cardinal direction trees and colors are invoked three times in the *Chilam Balam*, each time when a new sky is established, after 3147 BC, after 2349 BC, and after 1492 BC. I will return to the question of ages and eras below.

This concludes the events of Katun 11-Ahau. I don't doubt the veracity of these sources, even though presented in somewhat disorderly fashion, and describing events much older than the earliest recognized archaeology of the Maya or the

Olmecs. This is not unexpected, since, as recounted (or hinted at) in the *Popol Vuh*, individual tribes acquired their own copies of the history books which had been kept at certain important sites.

In the text of the following Katuns additional details are developed, which again, with some extension of the strange names we are presented with, can be matched to worldwide catastrophic events we know from other sources. But the following events are more difficult to sort out. Whereas events before the start of the current era (3147 BC) are all listed as happening in Katun 11-Ahau, the text which follows reads as if events separated by a thousand years or more are simply listed by the Katuns during which they might have occurred -- Katun 9-Ahau, 7-Ahau, 5-Ahau, and 3-Ahau. Following these are two sections separately describing the rulership of Saturn and Jupiter.

Katun 9-Ahau: Ten-Sky

The next Katun in order, Katun 9-Ahau, is introduced. This is the next Katun in order only if we adhere to the logic that Katun 9-Ahau is the next after Katun 11-Ahau. The period before 3147 BC does not end in a Katun 11-Ahau, but in Katun 4-Ahau. Philosophically, however, the Maya could only place "prehistory" in Katun 11-Ahau (Since a Katun 11-Ahau had ended on February 28th, 747 BC.)

By coincidence, Katun 9-Ahau is actually the fourth Katun after 3114 BC (four times 20 years: Katun 2-Ahau, 13, 11, 9), thus completing the 80 years of "negotiation" which the Egyptians claim as the delay before Horus/Mars takes control of Egypt. Counting 80 solar years forward (as Katuns) from the date of 3147 BC, reaches 3067 BC as the ending date of Katun 9-Ahau. This is also the most likely date when Mars first shows up in Egypt.

"The plate of another Katun was set up and fixed in its place by the messengers of their lord."

The "plate" is often used to reference a Katun together with "cup," as in, "nine was its cup, nine was its plate," used to describe Katun 9-Ahau, and similar readings in the "Chilam Balam" for other Katuns. Tedlock reads "plate and cup" as the dedicatory vessels used at shrines.

At this point the four trees of the cardinal points are introduced again. I don't know why. We have just seen the trees that appeared right after 3147 BC. The

trees are here out of order, and very likely the source pages are being read out of order. This second set of trees has to follow rather than precede the notes about Venus (Ah Uuc Chek-nal, further below, after my notes on Ten-Sky).

"The red Piltec was set at the east of the world to conduct people to his lord."

"The white Piltec was set at the north of the world to conduct people to his lord."

"Lahun Chaan was set (at the west) to bring things to his lord."

"The yellow Piltec was set (at the south) to bring things to his lord."

In the third line quoted above, "Lahun Chaan" (Ten-Sky) is not one of the colored trees of the cardinal points, but is Mars. So thinks Roys, who writes, in a footnote on this matter:

"Lahun Chaan is doubtless the same as the 'Lahunchan' described by Cogolludo as an idol with very ugly teeth. 'Lahun' means ten in both Maya and Chol, and 'chan' means sky, heaven, and serpent in Chol. The Maya word for sky is 'chaan'."

He continues at length, and adds:

"We recall that a fleshless jawbone is one of the symbols of the number ten on the monuments; but the figure appears to be the regent of the second Venus period in the Dresden Codex, and the regent of the first of these periods in the Mexican Codex Bologna also has a fleshless lower jaw. Since the above passage in the Chumayel implies that Lahun Chaan was set in the west, the translator is inclined to believe that this god was closely connected with the appearance of Venus as an evening star."

I doubt that "Ten-Sky" is a reference to Venus, for Venus is seen both in the east and in the west as well as traversing the whole of the sky during the day, as Roys's insertion suggests. Mars is seen crossing the night sky. The phrase "at the west" is, however, an insertion based on the fact that a tree of the west is not mentioned. The line actually reads, without the addition by Roys:

"Lahun Chaan was set to bring things to his lord."

I think "Ten-Sky" is Mars. We see nothing else of the repeated close calls by Mars during the period of about 3100 BC to about 2700 BC except the title "Ten-Sky." From Egyptian and Mesopotamian records it appears that Mars/Horus cruised close to Earth some ten times after 3100 BC. My estimate for the first appearance of Mars/Horus is the year 3067 BC. The Katun 9-Ahau period -- when "Ten-Sky" first appeared -- ends in the corrected date of 3067 BC.

To "bring things to his lord" is mentioned for all four (or three) trees here, but not for the other instances of these trees elsewhere in the document. The question then is, Who is the "lord"? Since we know already that during the first 150 to 300 years when Mars drew close to Earth, Jupiter stood in the sky as a globe on top of a green mountain, after which it entered the Asteroid Belt (and the mountain form disappeared), it is likely that the "lord" is Jupiter. His reign is attested to elsewhere (as the "second reign"), but here (for this Katun) there is no other mention of Jupiter.

Interestingly, in the *Popol Vuh* the celestial twins Hunahpu and Xbalanque defeat the mountain giant Zipacna directly after they remove the Celestial Bird of the North Pole. Mars, known as Earthquake in the *Popol Vuh*, is their third target. He will be tricked, drugged, hog tied, and buried alive.

Katun 7-Ahau: Venus

The next lines are without question about Venus. Since no notice of a change in Katuns is given, this should be a continuation of Katun 9-Ahau, which dealt with Ten-sky. But instead the record now jumps 2000 years ahead to a Katun 7-Ahau which ends in 1478 BC, and spans 1507 BC to 1487 BC in corrected notation. This thus spans 1492 BC, the electric contact by Venus (and the Exodus). This arbitrary grouping of events by Katun names, even when they are not really consecutive, is typical of the other books of the *Chilam Balam*. The *Chilam Balam* continues:

"But it was (over) the whole world that Ah Uuc Chek-nal was set up. He came from the seventh stratum of the earth, when he came to fecundate Itzam-kab-ain [the Earth], when he came with the vitality of the angle between earth (and) heaven."

Roys translates "Ah Uuc Chek-nal" as "he who fertilizes the maize seven times," which suggests that "Ah Uuc Chek-nal" appeared seven times. I suspect "Ah Uuc Chek-nal" is Venus.

"Itzam-kab-ain" is the Earth, the whole Earth, designated as a "crocodile-footed whale." The Maya conceived of the Earth as floating on water, and as supported by a giant whale-crocodile creature. Bolio translates this passage as:

"At that moment, Uuc-cheknal came from the seventh layer of the sky. When he came down, he trodded on the backs of Itzeam-cab-Aim, so-called. He came while the earth and sky were being cleaned."

The imagery is not far removed from a "close passage" of Venus, except that Venus would never have come close. The phrase "while the earth and sky were being cleaned" suggests hurricanes and tsunamis, which would certainly have been experienced on the four or more approaches by Venus between 2349 and 2193 BC and again in 1492 and 1442 BC. The first approach (2349 BC) involved the fall of the Absu -- the "flood of Noah" -- but this is handled separately and out of proper sequence further below.

If this, as I suspect, represents the contact of 1492 BC, the compressive contact would have been in the Pacific, and immense amounts of water vapor would have been carried into the atmosphere. The path of arcing would have angled up (because of the Earth's gyroscopic reaction), swung through the Indian Ocean, the Mediterranean, and angled southwest again through the Atlantic. The experience of Mesoamerica would have been two-fold, first a Pacific tsunami from the west, followed by billowing clouds from the east, the last arriving less than a day later. Attributing these to a celestial interloper is fully within the realm of what other people did. The planet was seen -- as if approaching -- and the local effects were interpreted as if Venus were close by.

Roys suggests another translation of *"when he came with the vitality of the angle between earth and heaven,"* which reads, *"then he descended while the heavens rubbed against the earth."* That makes sense as the condition of a fallen sky after 1492 BC. But, in fact, it makes more sense in that the "rubbing" would represent the huge shape seen in the night and day skies, the inner Van Allen belt toroid in glow mode, seen more or less in the center of the sky, on both sides of the equatorial, and stretching from the east horizon to the west.

Now about Katun 9-Ahau and the reason for placing this event in Katun 7-Ahau: Elsewhere I have assumed that approaches by Venus happened repeatedly between 2349 BC (the "flood of Noah") and 2193 BC (the fall of Akkad), for a total of four contacts. Earlier occurrences of Katun 9-Ahau do not match these dates. Katun 9-Ahau in Baktun 1 ends in 2523 BC (corrected to 2547 BC), too early for the "flood of Noah" by 200 years, and Katun 9-Ahau in Baktun 2 ends

in 2266 BC (corrected to 2287 BC), after the "flood of Noah" by one hundred years.

I have assumed in these few paragraphs that this event might have happened in Katun 9-Ahau, it is because nothing in the text signifies that a Katun of a different name is under discussion. Katun 9-Ahau in Baktun 4 ends in 1507 BC, when corrections are applied, and thus only comes close to the time of the Exodus of 1492 BC (or other estimates from 1495 to 1491 BC). That would place the Exodus of 1492 BC 15 years after the end of the Katun.

I think, in fact (and as I have pointed out earlier), that this rubbing of Earth and heaven did not occur in Katun 9-Ahau, but happened in the next Katun, 7-Ahau, even though the text is silent about this. There is a pattern developed in the text of assigning appearances of planets to Katun 9-Ahau, at times by inference and at times by the neglect of naming the actual Katun. This becomes obvious when it is realized that the event of 2349 BC (the "third creation") is assigned to a Katun 9-Ahau in complete error, as I will describe further below.

This then is what we have: Since all of pre-history is assigned to a Katun 11-Ahau, the start of the current era (from 3147 BC) is assigned to the assumed first Katun of the era, 9-Ahau. This despite the fact that the current era started with Katun 2-Ahau. But the next event, the ten close passages of Mars (Ten-Sky) are then correctly assigned to Katun 9-Ahau, and the Katun is named. The next event, the electric contact of Venus in 1492 BC, is, however, assigned to the same Katun 9-Ahau only by the fact that no mention is made of a new Katun. The text shifts to this event as if it belonged to Katun 9-Ahau. But, in fact, the corrected ending date for Katun 9-Ahau in Baktun 4 is 1507 BC -- too early for an event in 1492 BC. The next Katun in order, Katun 7-Ahau of Baktun 4, spans the date of 1492 BC, plus any of the variations of this date as calculated in antiquity -- 1491 BC, 1495 BC.

Now it is possible that the scribe making the transcription simply neglected to mention that the event, "Ah Uuc Chek Nal rubs the earth," occurred in Katun 7-Ahau. But it is significant that the shift of events to Katun 9-Ahau happens 4 times, one by an implication, two by neglect, and one as a purposeful falsification. This last, the Katun year for the "third creation" stands out, for it involved moving the event so that the "first day of Kan" of the Katun would fall on the Gregorian equivalent calendar date of July 26th. Only Katun 9-Ahau of Baktun 1 does this in all of the 5200 years of the 13-Baktun cycle of time. This trick will be detailed further below.

I have to make note again of the fact that, because of the Maya understanding of the cyclical nature of time, repeated appearances of visiting planets are not separately listed, except in their titles, as in "Nine-Lives," "Ten Skies," and "He Who Fertilizes the Maize Seven Times." That would seem to explain why there is no notice of Venus between 2349 and 2293 BC. The other events of this same period are listed separately further below.

To return to the seven appearances of "Ah Uuc Chek-nal," I count four appearances of Venus between 2349 BC and 2193 BC, and 700 years later one each in 1492 BC and 1442 BC. This adds up to six overflights. It is possible that the nova event of Venus in 685 BC, another 755 years later, represented the seventh. But this last event is not attributed to Venus in the *Chilam Balam*. Only mention is made of the Sun going off course in 685 BC (further below). I think, however, that all references to Venus in 685 BC, when Quetzalcoatl lived and died, were carefully avoided in the record -- for fear of revealing information to the Spanish priests.

The other likely explanation is that the "cow" form associated with Venus, the change of the Van Allen Belt to glow mode, appeared also directly after 3147 BC, since at that time the Earth would have switched to experiencing the electric field of the Sun from the prior experience of only sensing the electric field of Saturn (being within the plasmasphere of Saturn). This initial event was not associated with an actual electric contact by Venus, except by inference. Interestingly, since all of pre-history was held to happen in a Katun 11-Ahau, this first cow would have been assigned to the next Katun, 9-Ahau. It is possible that Earth was jolted by Venus directly after 3147 BC. This would constitute the seventh contact with Venus, and might explain why (apparently) the year changed from 225 days to 240 days in 3147 BC. [\[note 19\]](#)

The *Chilam Balam* continues with how the people walked in darkness:

"They moved among the four lights, among the four layers of the stars. The world was not lighted; there was neither day nor night nor moon. Then they perceived that the world was being created. Then creation dawned upon the world."

"They" probably refers to the people, but could also refer to the Gods. That they (the people) "moved" may suggest a migration, as is likely under the conditions of the climatic downturn of 1492 BC. The whole of the paragraph seems almost lifted from the Bible -- speaking of the wanderings of Israel in the desert after 1492 BC.

The "four lights" might be the great luminaries -- the Sun, Moon, Jupiter, and Saturn, although the same paragraph reads that there was no Moon yet. In 1492 BC there was a Moon. Roys suggests "candles" also for the "lights." That suggests stationary lights. Bolio uses "the fourth fire" for the "four lights." I think that the "four lights" are the four "trees" at the cardinal points, the two impinging plasma plumes at the poles and the edges of the equatorial toroid of the Van Allen belt. If a cloud cover obscured the Sun and the stars, as seems implied, then perhaps we are seeing the north and south plasma plumes at least in glow mode, possibly in arc mode near Earth. That might then be true for the east and west plumes also, if these are associated with the toroidal Van Allen belt. This also suggests that the plumes may have lasted for decades.

I also should not neglect that in 1492 BC the Earth went through a wild swing -- it all but tipped over, or at least was placed on its side, as I have suggested in earlier text. Midrashim commentary on Exodus suggests that in 1492 BC the sweep of the pole, "when the stars stopped moving," took a little over a year (Velikovsky). But the major effect is more likely due to a very dense cloud cover, although it is difficult to imagine that a cloud cover (unlike stratospheric dust) would extend to twenty years and obscures the stars.

The use of "the four lights," even if meant to signify the directional trees, might thus be a simile for wandering over a wide geographical area. The language in this case, especially when the following line is considered, which suggests an enormous time span of 8000 years, seems lifted from Book 11 of the *Chilam Balam* which relates the time leading up to the "first creation."

"During the creation thirteen infinite [400] series (added) to seven was the count of the creation of the world. Then a new world dawned for them."

The word translated as "series" can also mean "steps." The "seven" might be the count of the Katun (chronologically). "Infinite" is often the translation of "400," a Baktun. 13 Baktuns would be 5200 years. 13 plus seven would be 8000 year. Thus the "infinite series of steps" might represent a very long time.

On the other hand, thirteen plus seven is 20 years -- one Katun. Other Mesoamerican sources speak to "a generation" of darkness. Bolio translates as:

"Infinite rungs of the ladder of time and seven moons later were counted since Earth woke up and then the dawn came for them."

Seven moons would represent a half year. Most of this phrasing remains unclear except to suggesting the passage of a lot of time, or, as I have suggested, some twenty years. But that could have been stated in terser terms. Perhaps we are here seeing a poetic metaphor for "long time."

It might be suggested, in fact, that the "rungs of the ladder of time" is a metaphor for Uinal months, periods of 20 days. Then we have $(400 \times 20 + 7 \times 20) / 365 = 22.3$ years roughly the duration of one Katun.

The 2349 BC Event

The following, although grouped with the start of a new creation, is, I suspect, from a different source. It details events of 2349 BC, the time of Noah, but not all of them. Some are listed further down in the text. The events are also not introduced by listing a Katun name. We would have to assume that Katun 9-Ahau continues.

I think, from the following text, that the copyist is opening a new book, perhaps one titled "the third creation." Unlike before, he copies the pages in the correct order, but leaves off the fall of the Absu, which is recounted much later.

The information is, in fact, not out of "literary" order, since the previous text ended with mention of the start of a new creation, although the reference was to 1492 BC. (We see this sort of connection used much later to describe events of the 8th century BC.) The "third creation," however, points to events in 2349 BC. All the events listed over the next few paragraphs belong to 2349 BC, not 1492 BC.

The text starts with:

"The two-day throne was declared, the three-day throne."

The phrase "two-day throne, three-day throne" is used elsewhere in the *Chilam Balam* to denote short-term leadership, especially in reference to the governing councils of the Itza. Bolio, however, has a more sensible reading:

"the reign of the second period, the reign of the third period was felt."

That makes a lot more sense. The alliteration of the text makes it look like a chapter heading. The question again is, where are we in the Katun counts? They are not mentioned in the following texts. We could assume that the text simply

continues with the next Katun in order (Katun 7-Ahau or 5-Ahau), but this results in events which cannot be placed at dates known from other sources. I will therefore suggest that the listing of events continues to be assigned to a Katun 9-Ahau, as had been implied for the event of 1492 BC.

But of course this is incorrect, although it continues the obsession of placing all planetary events in Katuns named 9-Ahau. The "third reign" started at 3147 BC, and ended in 2349 BC. This is not Katun 9-Ahau (see listing at endnote 29). There is a reason for insisting that we are still in Katun 9-Ahau. As I will detail further below, the Katun name for the event was changed in antiquity to conform to the notion that the events involving the "third creation" had to have happened on a "day of Kan." This was an important aspect in later analysis of older texts. It was an important notion because it was apparently held that the Tzolkin calendar governed celestial events, rather than the other way around. The "third creation" was the most important event of the past, celebrated with ballcourts and site names, and therefore had to end on the correct day.

There are five events listed before we return to naming Katuns. These are the plasma mountain of Jupiter (which may presumably be correctly dated to an earlier Katun 9-Ahau ending in 2547 BC), the return of a coma of Jupiter (which happened in 2349 BC), the first view of the "planted timber," the appearance of the Moon (in 2349 BC or soon after), and the complete extinction of Jupiter (199 years later). I have listed some of the above in correct order, rather than as the events are listed in the *Chilam Balam*. Some of the events fall in even numbered Katuns, mention of which is avoided throughout the book of the *Chilam Balam*.

There may still be a question if this represents the "second creation" or the "third creation," because we are, in fact, first presented with what seems to be an element of the second reign. Saturn, the *Chilam Balam* reads, develops a cometary coma. I think there is an error here.

"Then began the weeping of Oxlahun-ti-ku [Saturn]. They wept in this reign. The reign became red; the mat became red; (because of them) the first tree of the world was rooted fast."

Bolio has, instead of "rooted":

"... the tree became red."

And Bolio also has:

"And then the three gods began to cry."

The "three gods" would have been Jupiter, Mars, and Venus. These are the "three gods" of the Classical era of the Maya. Roys, however, only has Saturn (not one of the "three gods" above) crying, which perhaps makes more sense. The "three" of the "three gods" could be a misreading of the "three" of "the thirteen" by Bolio. "Crying" is a plasma discharge -- a coma and tail. Saturn, however, never had a tail -- it is too positively charged.

I wonder if what we read here is a transcription error, that is, the author meant to write that "Bolon-ti-ku," that is, Jupiter, developed a coma and a sub polar tail (started weeping) rather than "Oxlahun-ti-ku," Saturn. We have no record of either Saturn or Mars ever developing a tail, even when Saturn was "attacked" by Jupiter in 3147 BC. I don't think that Saturn is meant above. Saturn by this time had receded into insignificance.

The (corrected) date of 2567 to 2547 BC for the Katun 9-Ahau (in Baktun 1), mentioned above, coincides with the time when the Egyptian pharaohs first add "Re" to their names -- after 2600 BC. "Re" is the midnight sun, Jupiter. I will suggest that this is what is being described here with the "tree turning red."

Thus in this instance, the supposition that we are in a Katun 9-Ahau is correct. This is a record of the re-appearance of the plasma discharge of Jupiter after it had cleared the asteroid belt in receding from the Sun -- about 500 years after 3147 BC. My earlier diagrammatic estimate of when Jupiter first exited from the asteroid belt (shown in a previous chapter) is the year 2527 BC, which is 20 years after the end of this Katun 9-Ahau (2567 to 2547 BC, corrected). Since the dates of the graph are estimates, it is certainly close enough.

The redness of the apparition cannot be neglected. Although Mesopotamian sources do not mention colors, the Egyptians always depicted Jupiter as a huge red ball. This huge red coma lasted for about 300 years, from about 2550 BC (Katun 9-Ahau in Baktun 1) to sometime before 2349 BC and then returned in 2349 BC. The interruptions will be noted in the text.

The "tree," which Bolio translates as a "red tree," is probably what Mesopotamian cultures had identified as a mountain. It is the plasma discharge of Jupiter from its southern polar region. Notice that the plasma expulsion has changed from green to red. This could mark a change in the ionized gases at the outer edges of the plasmasphere, but it could as likely be a change in the density

of these ions. This last is more than likely with a change in the experience of a lower external (solar) electric field.

What the Egyptians called a mountain, the Olmecs identified as a tree. It was earlier identified as the "green tree" of the center. This green mountain described as a "tree" first appeared directly after 3147 BC, but disappeared after 300 years as Jupiter entered the asteroid belt, to reappear 330 years later, as described above.

The Moon

At the following part of the text we still seem to be in the time after the end of the "third creation," the period after 2349 BC. But again, a Katun name is not disclosed. It suggests that we are to understand that events of Katun 9-Ahau continue to be listed. The following text is about the Moon, and reports that Jupiter was not weeping. The *Chilam Balam* reads:

"The entire world was proclaimed by Uuc-yol-zip; but it was not at the time of this reign that Bolon-ti-ku [Jupiter] wept."

There is no indication, from the translators, of who "Uuc-yol-zip" is. I would take a wild guess and suggest that, if we are chronologically in the period after 2349 BC, that Uuc-yol-zip is the Moon, which was an independent inner planet already orbiting the Sun at the location to which the Earth moved in 2349 BC. (Lunar calendars are established worldwide only after 2349 BC.)

Earth suddenly picked up a satellite, or, more properly, started to share an orbital location with the Moon, for the Moon travels in the ecliptic, not on the Earth's equatorial. A rapid discharge of the Earth via the Moon, could have destroyed any of the remaining Absu in record time. More on that below.

Uuc-yol-zip is never mentioned again and remains unidentified. Roys, on the basis of other informants, suggests a Deer God, which makes some sense if you have never seen the Moon before and you are suddenly confronted by its changing shape and nightly relocations. The Moon will relocate from the southeast sky to the northeast in the course of a week. But what Katun are we in?

The first appearance of the Moon (the Deer God) should be placed after 2349 BC, but this date falls in a Katun 4-Ahau, rather than the implied Katun 9-Ahau. In fact, I should point out another source, the only other Maya source of ancient history other than the *Popol Vuh*. The Temples of the Cross at Palenque (built in

circa AD 690) claims that Jupiter, Mars, and Venus were all born in 2360 BC (corrected to 2336.8 BC a decade after 2349 BC). The Moon was their mother. Later, the Moon "let blood" in 2302.3 BC and "crowns herself" as ruler ("Ahau") in 2282.6 BC. These last two are corrected dates. [\[note 20\]](#)

We don't know exactly what these last two events were. But they can be placed, the first ("letting blood") in Katun 11-Ahau (ending in 2286 BC, corrected to 2307 BC), and the second event ("crowning herself") in Katun 9-Ahau (ending in 2266 BC, corrected to 2287 BC). Perhaps the second Palenque event records the regularization of the Moon's orbit. The wording of "*the entire world was proclaimed*" suggests the same assumption of rulership, which was as deep a concern of the Maya as it seemed to have been for most civilizations in the world. I would thus suggest that the event quoted from the *Chilam Balam* above should probably be assigned to Katun 9-Ahau, and equated to the Palenque record of the Moon "crowning herself" as ruler. This would place it in Katun 9-Ahau (a Long Count of 2.3.0.0.0), even though this is later than what I think it should be. The following will elucidate where this concern comes from.

That Jupiter did not "weep" at the time the Moon appeared (or assumed rulership) is interesting. It suggests that Jupiter had lost its coma and tail. I know that this happened some time after 2400 BC, but I have been unable to determine exactly when. I'll attempt to zero in on that first.

In my diagram of the recession of Jupiter from the Sun, the date when Jupiter encounters the last clump of asteroids at 3.9 to 4.0 AU is shown as 2438 BC to 2349 BC. This may be a high date because I have used a constant radial recession for the calculation.

In Egypt the title "Son of Re" had been in use already by the pharaohs who completed the Giza pyramids before 2500 BC, and was used by all the following pharaohs. During the following fifth dynasty, which spans 2490 BC to 2350 BC, "sun-temples" were built (or rebuilt) along with the pyramid graves of the first six pharaohs of that dynasty, in the period of 2490 BC to 2445 BC. "Sun-temples" are steep pyramids on a flat base. In Egypt these pyramids are the "symbol" of Re, Jupiter, representing the mountain form of the plasma outpouring below its south pole.

Further construction of "sun-temples" was abandoned before the end of the fifth dynasty. These dates suggest that the coma and tail of Jupiter (Re) might have disappeared by 2445 BC (the last "sun-temple"), but we do not know exactly when, or how long it took before this showed up as a change in religious

monuments. On the basis of the above information the loss of a coma would be placed sometime before 2445 BC. There is thus a 20-year period where Jupiter seems to have disappeared or, more properly, diminished considerably in size.

The Chinese *Annals of Shu* speak of Yao (Jupiter) gaining the throne as "emperor" in 2357 BC, as if to say that Jupiter again developed a coma at that time. The first few dates of the *Annals of Shu* should probably be placed about a decade later, thus the above date should probably be nearer to 2349 BC.

There is also an interesting passage in the Babylonian *Enuma Elish* which recalls the disappearance of Jupiter's coma tail (as a garment) and its reappearance. Since the *Enuma Elish* clearly recounts the contact with the plasmoid from Venus in 2349 BC, it could be suggested that the disappearance of the coma and tail of Jupiter should be placed before 2349 BC. A period longer than 20 years would perhaps not allow this disappearance event to pass into a narrative. But an exact measure of time was not needed to be recalled, since the *Enuma Elish* was written 500 or 600 years after the events of 2349 BC.

The second instance of the coma of Jupiter disappearing during this time might have coincided with the first appearance of the Moon (at that time perhaps not yet in orbit around Earth). From Palenque, that would be the corrected date of 2336.8 BC (when the planets were "born") -- and thus 12 years after the spectacular blazing of 2349 BC, when Jupiter developed its large coma. But other records contradict this. The *Annals of Shu* claim that Jupiter (Yao) and the Moon (Shun) shared the throne for 30 years. The victory stele of Naram-Sin, "Beloved of the Moon" (2254 - 2218 BC), the great-grandson of Sargon, erected in 2250 or 2200 BC shows the two Gods at the top as stars. Jupiter is shown on his mountain; the Moon is without a support.

Jupiter Returns

"Then came the counting of the mat in its order."

The "counting of the mat" is the start of a new Katun. This has to be Katun 5-Ahau, if the Katuns are taken in order, that is, as if this text is a recital of prophecies associated with various named Katuns. But the naming of Katun 7-Ahau has been skipped, perhaps by accident, perhaps on purpose. The present Katun starts with the seating of Jupiter.

"Red was the mat on which Bolon-ti-ku [Jupiter] sat. His buttock is sharply rounded, as he sits on his mat."

Now we have another plasma outpouring of Jupiter, and again without a clear reference to what Katun has turned. I am tempted to believe that this is the **return** of a coma and tail in 2349 BC. That would place this event in Katun 2-Ahau, at 2.0.0.0.0 in the Long Count.

But it is more tempting to place this event (which seems to have been important for its redness) in a Katun 9-Ahau at the time when Jupiter first exited from the asteroid belt. I have already mentioned this event, above. The red mountain had not been seen for 300 years. This would be a Katun 9-Ahau in the first Baktun (1.10.0.0.0), with a corrected span of dates of 2567 to 2547 BC.

Roys suggests that "his buttock is sharply rounded" could also mean pointed or rounded like a hat. I do not know what to make of this except that it would perhaps fit the emblem -- a circle above a horizontal line -- used for Jupiter (Marduk) in Mesopotamia, and one of the magic symbols of the Egyptians, called the "shen," where the circular part is rendered in red. In Egypt Re (Jupiter) is always shown as a large solid red disk. A "sharply rounded buttock" does not readily match a giant lower plasma stream.

"Then descended greed from the heart of the sky, greed for power, greed for rule."

The phrase, *"Then descended greed from the heart of the sky, greed for power, greed for rule"* exactly expresses the earlier parallel experience after 2700 or 2600 BC in Mesopotamia (the kingship at Uruk) and Egypt (the third dynasty which starts the Old Kingdom). It was coincident (within a hundred years) in both cases with the return appearance of Jupiter on his mountain.

It is also the period after Mars had stopped making close calls to Earth. It is possible that both in the Eastern Mediterranean and in Mesoamerica a change happened -- a change from celestial rulers (and their priests) to human rulership. I would not make this suggestion if it were not for the fact that with the withdrawal of Mars and Mercury from the neighborhood of Earth, there was a worldwide change in conditions. Nothing would keep up the temple economies, when they were no longer needed to placate or plead with the destructive Gods, except the insistence of an autocratic leadership. If this can be accepted -- that at this time we see the first kingships -- then all other explanations, which place causes closer to us in time, can be dispensed with.

The period after 2300 BC saw the predecessors of the Olmecs establishing sites in the tropical region along the Pacific coast of Guatemala, some of which are today dated to about 2000 BC. In 1450 BC the first site on the Caribbean coast in Veracruz, Mexico, was established, San Lorenzo. It seems strange that complaints about leaders would be part of a history of the Gods except that this is also a history of the world. By the time of San Lorenzo, when we see what absolutely stupendous constructions the "greed for power" can accomplish, "leaders" had been well established for a thousand years.

Based on the complaints about leaders, as suggested above, I think we are in the period after about 2700 BC here (and for San Lorenzo, after 1440 BC). Here follows the third listing of trees. The remainder of this section deals with rulers, in association with the color of the trees at the cardinal points. It is a very generic presentation, unlike the exaltation of the leaders of Egypt, who built the Giza pyramids.

"Then the red foundation was established; the white foundation of the ruler was established; the black foundation was established; the yellow foundation was established."

"Then the Red Ruler was set up, he who was raised upon the mat, raised upon the throne."

"The White Ruler was set up, he who was raised upon the mat, raised upon the throne."

"The Black Ruler was set up, he who was raised upon the mat, raised upon the throne."

"The Yellow Ruler was set up, he who was raised upon the mat, raised upon the throne."

This is followed by more complaints about these rulers, and their limitations. It is interesting that the geographical concerns (the colors of the cardinal directions) have shifted to actual persons or sites at this time. [\[note 21\]](#)

"As a god, it is said; whether or not gods, their bread is lacking, their water is lacking. There was only a portion (of what was needed) for them to eat together (...) but there was nowhere from which the quantity needed for existence could come."

"Compulsion and force were the tidings, when he [Jupiter] was seated (in authority); compulsion was the tidings, compulsion by misery; it came during his reign, when he arrived to sit upon the mat. (...)"

NOTE: "(...)" above represents lacunas in the original text.

There are similar sentiments about rulers expressed in a later section. I should point out that later text will claim the rulership of Saturn extended over the era before 3147 BC, and the rulership of Jupiter extended from after 3147 BC to the time of the arrival of the Spanish. Thus Jupiter's rulership extends over all of the "second creation" and the "third creation."

The above text, and the ones following below, will seem confusing if the actual sequence of events in the era of 2500 BC to 2200 BC is lost sight of. To orient the reader, let me list a summary of events of the "Fall of the Absu" -- what is otherwise known as the "flood of Noah." The details of these were developed from more extensive sources from the Eastern Mediterranean region, India, and China, and presented in the chapter "The Career of Jupiter."

- Near the beginning of the third dynasty in Egypt, Jupiter exits from the main portion of the Asteroid Belt, and again assumes a gigantic lower plasma outpouring -- the mountain. Pharaohs of this dynasty, which built the pyramids at Giza start to add "Re" to their names. This happened in a Katun 9-Ahau, ending about 2500 BC.
- This event of Jupiter again showing as an enormous globe on a mountain is taken in the *Chilam Balam* as the "reign of the third period." This event is taken as an anchor in this book of the *Chilam Balam* to list other events related to the later events of 2349 BC. The reason why the Olmecs or other people of antiquity selected Katun 9-Ahau will be detailed further below.
- I should note that a separate page of the *Chilam Balam* actually recounts all the events of 2349 BC in the proper order. This will be detailed in the next chapter.
- At some time before 2349 BC the coma and tail of Jupiter disappeared again. From the fact that no additional "sun-temples" were built in Egypt after 2445 BC, we can suggest that Jupiter since that time had neither upper plumes nor a lower mountain of plasma. Jupiter was dead. My diagrammatic analysis of the travels of Jupiter away from the Sun, shown

in the chapter "The Career of Jupiter," places this at 2438 BC, about 100 years before the "flood of Noah" in 2349 BC.

- In 2349 BC a transit of the Sun by Venus caused an Earth shock, tilting up the equatorial, which was hit by a plasmoid from Venus some hours later, identified in the Middle East as a gigantic dragon that waded in the blood of humans seen in the ocean of the sky for days. The initial plasmoid was followed by some nine additional, lesser plasmoid lightning bolts.
- The Absu turned red, and lightning fired across the rings. The equatorial rings disappeared soon after, and the southern stars first showed. Most prominent was the appearance of the Pleiades, high in the sky in the south at midnight.
- On the third night Jupiter regained its coma, upper plumes, and lower mountain form. Jupiter was back from the dead.
- When the Absu collapsed, the Pleiades appeared for the first time -- an event which continued to be used in the future as a signal for celebrations of the "Day of the Dead" worldwide. At the same time the roof beams of the sky -- the intersection of the equatorial and the ecliptic -- showed up as a yellow road (the ecliptic) and a blood-red road (a remnant ring below the equatorial).
- The Moon showed up near Earth soon after. This was listed in the text above. But with the appearance of the Moon, the *Chilam Balam* notes that Jupiter was "not crying" at that time. The appearance of the Moon, or, more likely, its settling into a regular orbit, is assigned to Katun 7-Ahau, and this might in fact be so.
- One additional event, although it happened 200 years later, is noted in this collection of associated events: the giant coma of Jupiter blazed as if on fire and then disappeared to have Jupiter assume the look of a star. This is described below as "The Burning Tower," and it can (most likely) be placed in a Katun 8-Ahau.

The Burning Tower

As I warned, the events of the 24th and 22nd century BC are presented completely out of order. Thus we start with an event of the 22nd century, the

burning of Jupiter. In what is assumed to be Katun 7-Ahau, although not altogether clear from the previous text, we have this strange incident described:

"Suddenly on high fire flamed up. The face of the sun was snatched away, taken from earth."

"This was his garment in his reign. This was the reason for mourning his power, at that time there was too much vigor. At that time there was the riddle for the rulers."

This duplicates the "Tower of Babel" story from the bible and supposedly other similar tales worldwide. We are between the year 2200 BC and 2000 BC. Since it follows the description of the rulership of Jupiter, it suggests the sudden demise of Jupiter, especially when we consider the phrase, *"The face of the sun was snatched away, taken from earth."* The Sun's face, after all, has not been taken away from Earth. This could only be a reference to Jupiter, who was still called "the Midnight Sun" by the Maya even in Classical times, and "Lord Sun."

In other text I have suggested that the Chinese dates for Yao's demise should probably be moved 100 years into the future, thus to 2150 BC. This would also be the death of Abraham. The year is fairly certain. Katun 8-Ahau (2.10.0.0.0), corrected to span 2167 BC to 2147 BC, would match this date. This date is also supported by other sources.

The Planted Timbers

The following text follows on the "burning tower" without notification of a change in Katun. I think, however, considering what we know of the fall of the Absu in 2349 BC, and the events which accompanied this, that the sequence is completely incorrect. The planted timber and the crossroads mentioned below, follow directly on the removal of the Absu (the "flood of Noah") in 2349 BC, and have nothing to do with the later blazing of Jupiter. The coincident events are:

- The collapse of the "House of Nine Bushes" and the "baptism from the center of the sky" -- listed further below
- The appearance of the Pleiades -- listed directly below.

- The appearance of the ecliptic and the equatorial in the south skies (the cross roads or roof beams).
- The appearance of the Moon (but could be later) -- listed above.
- The north and south polar plumes -- the "timbers" below,
- The return of Jupiter -- already listed above.

This is Katun 2-Ahau, which ends nominally in 2325 BC (2.0.0.0.0), but the dates should be corrected to be from 2367 BC to 2347 BC. This thus includes the date from the Eastern Mediterranean of 2349 BC for the fall of the Absu and the "flood of Noah." By coincidence this Katun falls at the end of a Baktun.

"The planted timber was set up. Perishable things are assembled at that time. The timber of the grave-digger is set up at the crossroads, at the four resting places. Sad is the general havoc, at that time the butterflies swarmed."

Roys reads this paragraph as a local event, suggesting that rulers were assembled and executed at the intersection of two roads in the land of the Maya. I doubt if it has this specificity, for the few other political events which are recalled in other books of the *Chilam Balam* list the names of the actors, in one instance from 700 years earlier. If this execution of chiefs had happened within the last 1000 years, we would have been told the names of the assailants and victims. The language of the Maya (and other people of the region) demands identification of an action in terms of the agents.

The "assembly of perishable things" are the Pleiades. Even in postclassical times the Maya held that the Pleiades were a sprinkling of seed maize. Certainly "precious things" is appropriate, because maize was held the highest status in all the Classical Maya culture. Since 2349 BC the Pleiades were seen above the intersection of the ecliptic and the equatorial, that is, at the location of the equinox, at the start of the constellation Taurus, as I have pointed out in other texts. As I have also pointed out previously, both the ecliptic and the equatorial were outlined as bright bands even still 1500 years ago, with the band of the ecliptic lasting into the 19th century. [\[note 22\]](#)

The equatorial showed at night as a band of glowing matter because of the debris still circling the Earth far above the equator -- left over from previous ages. After the Absu collapsed and most of the material dispersed away from

Earth (and continued to sprinkle down until AD 1700), a single band remained, blood-red in color. The red ring is identified as the celestial snake Apep or Apophis in the Eastern Mediterranean region.

The remnant ring would probably show as spikes rising up into the sky at the east and west cardinal points. These regions, being beyond the edges of the Earth, would be lighted by the Sun (but with the west band being in shadow). These might have been the two "trees" of the east and west cardinal points, although I am more comfortable with assigning the trees to the lower Van Allen belt.

Near the time of the equinox the shadow of Earth would fall on the equatorial band but not on the band of the ecliptic (which is much too far away). Thus it looked like the red equatorial band crossed behind the ecliptic, although in actuality it was just the reverse. These crossed bands, with one band falling behind the other (a graphical representation known as the "Saint Andrew's Cross"), were used by the Olmecs and Maya as graphical indicators of the ecliptic throughout remote antiquity and through the Classical Era.

The ecliptic showed as a band of reflecting material which did not fade away until about AD 1840. This is the "Yellow Road" of the Chinese. The two bands intersected at Taurus, below the Pleiades, or probably near the end of Aries, since the red ring was below the equatorial. Mention of the assembly of "precious things" occurs directly before the mention of the timbers at the crossroads. In Southern Mexico and the Yucatan these two bands were displaced only some 20 degrees from being directly overhead where they crossed. In the *Popol Vuh* they are the roof beams of the house of the grandmother of Hunahpu and Xbalanque. They are also the river of pus and the river of blood which have to be crossed to get to the underworld. In remote antiquity the red band appeared only after the Absu had fallen. Because the planets traveled in one of the bands, they were called the crossroads.

Two timbers are mentioned. The "planted timber" is most likely the north polar plasma plume, the other, the "beam of the gravedigger" is the south polar plume, located at the crossroads (and close to the intersection). At a much later time (AD 400 to AD 700) the Milky Way was substituted, which became a primary symbol of creation and access to the underworld for the Classical Maya (as well as archaeologists). The Milky Way had not been seen in the south skies before the fall of the Absu.

The word "gravedigger," Roys notes, can also be translated as "hiders" -- "anyone who buries or hides things." I have no idea what the Maya had in mind in attributing the new view of the bands of the sky (or the south polar beam) to the action of "hiders," but, typical of Mesoamerican grammatical constructions, anything that appears has to be attributed, via an action-oriented tense, to some being. Perhaps the Absu and the moving waves of the rings were meant as the "hiders."

From the *Popol Vuh* we have the interesting tale of the Giant called "Mountain" who digs a hole for the Four Hundred Boys and is nearly impaled by the timber which was to be the center post of the house. This timber was set up at the crossroads, under the crossbeams of the sky but also under the crossbeams of the house of the Four Hundred Boys.

The swarming butterflies probably visually represent the dispersal of the Absu or the lightning between the atmosphere and the rings of the Absu. A little later the "flood" will be mentioned.

Despite his demise, Jupiter certainly remained as the chief celestial deity. Of course his status as the ruler of creation would be reinforced by the returning plasma, called a "flower" later in the text, and the plasma bolt delivered in 685 BC. He will appear in Classical times as "God GIII" of the Palenque triad, and be called "Lord Sun."

Katun 3-Ahau: the Sun

The following describes the eruption of Venus in 685 BC. It is also listed out of place, because the event of 685 BC follows the repeated close calls by Mars and Mercury in the 8th and 7th century BC, which are described (out of place) further below. The Katuns are here named, but the individual pages are again being read in the wrong order.

"Then there came great misery, when it came about that the sun in Katun 3-Ahau was moved from its place for three months."

First, as I have noted earlier, the period of three 20-day months (60 days) exceeds the best estimate (from Zoroastrian sources) of the duration of the eruption of Venus by a month. Since the movement of the Sun was most likely charted to sunset locations along the horizon, I think the "sixty days" deal with the horizon setting location of the Sun.

The time interval here is one of three instances in this Book of the *Chilam Balam* where the period is given as an inclusive count. I first realized this for another instance, which caused me to look again at the other two. The three months are thus an interval of two "Uinal" months of 20 days, a total of 40 days. Having independently determined the ending date of the blazing of Venus and Mercury as July 25th, and a starting date as a new Moon before that, it was satisfying to realize that the "three 20-day months" mentioned here represent the 40-day interval between two new moons at June 15 and July 25 (Gregorian calendar dates).

I think we can suggest the veracity of these data from the fact that in all three instances, by allowing for inclusive counting, the intervals can be matched against other known dates and made sense of. This also again verifies the fact that the Long Count existed only since 747 BC, for no such accurate dates or intervals exist before 747 BC. (The inscriptions at Palenque were retrocalculated.)

"After three years [three heaps of years] it will come back into place in Katun 3-Ahau. Then another Katun will be set (in its place)."

Roys notes that "three years" literally reads "three heaps of years" which could be a longer period than three "Tun years" (of 360 days), or it could mean a shorter period, but apparently not longer than the 17 or 18 years it would take to reach the end of Katun 3-Ahau. I think a "heap" is likely to be a group of five, but of the 260-day Tzolkin calendar years. (As explained by other contemporary commentators on the mathematics of the Maya, this would be a "bundle" -- a line representing a count of five dots in the numeric notation. Of course a group of 20 is also called a bundle, as is, in later Central Mexico, a group of 52 years.)

The 15 "years" (three heaps of five) is probably a measure on the Tzolkin calendar which rotated the same day-name and day-number combination into place at the same horizon sunset location for a zenithal passage of the Sun. I am assuming a zenithal passage because these were deemed to be very important to each ceremonial site.

In actuality the location along the horizon of the zenithal sunset remained the same after 685 BC as it had been before 685 BC, to within a fraction of a degree, but the calendar day (our calendar) would move back by 10 to 17 days, as follows, depending on the latitude.



location	latitude	zenithal passage of the Sun		difference in days
		before 685 BC,	after 685 BC	
Izapa	14.960	August 21	August 11	10
Monte Alban	17.033	August 16	August 4	12
La Venta	18.125	August 14	July 31	14
Teotihuacan	19.638	August 10	July 25	16

The Tzolkin calendar, not being an annual calendar, would rotate a different day-name into place each following year. Normally, after 20 rotations of the Tzolkin, the same day-name would appear again on the same day of the Gregorian calendar (without accounting for the slippage due to leap days).

As so tersely expressed by the *Chilam Balam*, it would take three times five rotations of the Tzolkin ("bundles of years"), not the normal twenty, for the Sun to again return to the same day-name and day-number combination. We can find this easily, for we do not need to access the Long Count calendar, and we do not need to know the starting date or ending date. But we will have to "discount" the author's quirky inclusive accounting. "Fifteen years until" will mean a difference of "fourteen years." This is the second instance of an interval expressed as an inclusive count. It is then a simple matter to subtract 14 multiples of the 260-day Tzolkin from multiples of the 365.25-day year, until a difference is found which matches the differences in calendar days in the chart above.

In fact, 14 Tzolkin rounds are 12.5 days short of ten 365.25-day years. **$14 * 260 - 10 * 365.24 = - 12.40$ days**. This is the change in days experienced at Monte Alban. Monte Alban may thus be the source of the lowland Yucatan Maya author's original books. Already 600 years old (since the collapse of the Maya kingdoms) at the time they were read in the 16th century AD, the original source dates back well over 2000 years to 685 BC.

The first date of a zenithal passage of the Sun at Monte Alban, before 685 BC, would have been August 16, 686 BC, 6.3.3.6.11 7-Chuen. Fourteen times 260 days is 0.0.10.2.0 Long Count days. Adding, this gives 6.3.13.8.11 7-Chuen. This falls on August 3rd, 676 BC. One more day needs to be advanced to complete the count, thus August 4. Either way, the difference is 12 or 13 days. (This calculation is unaffected by the change in the calendar instituted at a later date by Monte Alban, in 607 BC. See the chapter "The Day of Kan.")

The same addition of 14 Tzolkin periods to the pre-685 BC dates results in (subtracting 12.5 days as 13 days):

- Izapa: August 9, not 11;
- La Venta: August 1, not July 31;
- Teotihuacan: July 22, not 25.

La Venta is close, however, and might stand as an alternate source for the original glyphic books from which Book 10 of the *Chilam Balam* was eventually composed. La Venta is somewhat north in latitude from Monte Alban.

I should also follow up on my earlier note on the *Chilam Balam* that the return of the Sun was accomplished before the end of the Katun, "it will come back into place in Katun 3-Ahau." As outlined above, the displacement on the Tzolkin calendar would have amounted to less than ten (current) years. The year 685 BC less ten years is 675 BC. This Katun 3-Ahau starts in 689 BC and ends in 669 BC, bracketing both the nova event of Venus in 685 BC and the date of the return of the Sun.

Only a short paragraph is recorded for all of Katun 3-Ahau, although the writer will repeatedly return to the event of Katun 3-Ahau. This was one of the most monumental events in prehistory. It changed the religions and probably the enterprises of Mesoamerica and started people on a path of independent thinking, as elsewhere in the world.

The writer continues with laments, presumably related to Katun 3-Ahau:

"The 'ramon' fruit is their bread, the 'ramon' fruit is their drink; the 'jícama cimarrona' is their bread, the 'jícama cimarrona' is their drink; what they eat and what they drink."

"The 'ix-batun,' the 'chimchim-chay,' are what they eat."

The foods listed are those eaten at a time of famine. Roys notes, however, "Most of the preceding paragraph concerning Katun 3-Ahau appears to be an interpolation. It is not found in the Tizimin and Mani versions," and notes that two other versions of the *Chilam Balam* list the misfortunes ("for each of the twenty years") of Katun 5-Ahau instead.

This is followed by a most curious sentence:

"These things were present here when misery settled, father, in Tun 9."

The Katun 3-Ahau text missing from other copies of the *Chilam Balam* may reflect the care the Maya took in hiding all notice of Kukulcan (Quetzalcoatl) from the Spanish priests. Is the meaning of "father" from a statement about of the exact genesis of Kukulcan, addressed to a Spanish priest?

It might very well be that this interpolation is a confession to a Spanish priest. But it is couched in talk of miseries, rather than the significance of Kukulcan's death and resurrection. Which may be why "the miseries" as well as the reference to "Tun 9" and to "father" is missing in other *Chilam* texts.

If correct as posed by me, then we have here the most valuable aspect of this document, a clear statement about the year of the Kukulcan event -- the earthly appearance of Quetzalcoatl and his death.

"Tun 9" is the ninth year of Katun 3-Ahau. Then "these things" would have happened in 680 BC. My first reaction was that the scribe had the Tun date wrong. If the event happened in 685 BC, then it should have been Tun-4 of Katun-3 (6.3.4.5.15). If the event happened in 680 BC, however, then it would have been Tun-9 (6.3.9.5.15) instead.

Then I remembered that my selection of 685 BC was based on correcting the established error in Eastern Mediterranean chronology. It actually was the year 680 BC on the Julian calendar, the very calendar that the Spanish priests had introduced into the Yucatan. The scribe thus did not make a mistake, but properly identified the year. At least, that is what it looks like to me: he identified the year in the calendar of the invaders when the Sun "did not follow its course for three months." In fact, he managed to retrocalculate the Julian calendar into an era before the Julian calendar was established.

The importance of this short paragraph about the Sun can be gauged from the inclusion of three specific date values: it lasted "three months," the Sun "returned" in 14 Tzolkin periods, and it happened -- ended -- in year (Tun) nine of Katun 3-Ahau -- 680 BC on the actual Julian calendar in use.

Two more data points will be added further below: the date of the release of the plasmoid by Jupiter will be identified and the interval between the last close sighting of Mars and the day the plasmoid arrived will be given.

At this point the list of Katuns is interrupted. To this point the phantom Katuns have progressed in the correct order, that is, Katun 11-Ahau, Katun 9-Ahau, Katun 7-Ahau, Katun 5-Ahau (though I have some problems locating Katun 5-Ahau), and Katun 3-Ahau. Katun 11-Ahau was used at the beginning simply from the notion that all history starts in Katun 11-Ahau. But Katun 3-Ahau can certainly be assigned to a definite time in the past which matches what we know from other sources.

The next Katun should have been Katun 1-Ahau, but now the writer introduces Katun 13-Ahau, with a single line about foreigners.

After introducing Katun 13-Ahau, the *Chilam Balam* then continues with a radically different listing of events. Events are now listed by Katuns in order, in the manner of the "prophecies" of the other Books of the *Chilam Balam*. This has all the look of an additional record from another original source. Near the end, when the writer restarts in Katun 11-Ahau, yet another primary source seems to have been accessed.

"At that time there were the foreigners. The charge (of misery) was sought for all the years of (Katun) 13-Ahau."

It is possible that the mention of Katun 13-Ahau is a very early transcription error (reading 13 for 3), or this may be a reflection of the expected content similar to other Books of the *Chilam Balam*, where Katun 13-Ahau is indeed associated with prophecies of foreigners, the Spanish. In another Book the foreigners arrive in Katun 5-Ahau and are Caribs. Other copies of the *Chilam Balam* have nothing on Katun 3-Ahau, and list "miseries," year by year for Katun 5-Ahau, which is missing from this copy of the *Chilam Balam* -- which is the version from Chumayel.

The 8th Century BC

The approaches by Mars in the 8th century BC (and the 7th century), which devastated Persia, Anatolia, Greece, and Italy, at 35 to 40 degrees latitude, did the same damage in Central America, as indicated by the fact that the number of villages in Mesoamerica decreased markedly in the 8th century BC.

But the *Chilam Balam* at this point is given over to descriptions of flowers, colors, and fragrances -- arcane celestial details never noticed (or mentioned) in

the Middle East. Perhaps we are now seeing the transcription from another source, "The Book of Flowers." Mars is only mentioned twice.

From dates extracted from the records of the Middle East the destructive events of the 8th and 7th century should be spread over four Katuns, from 747 BC to about 687 BC -- if we start in 747 BC. This would be the time span of Katun 11-Ahau (767 BC to February of 747 BC), Katun 9-Ahau, Katun 7-Ahau, and Katun 5-Ahau (ending in 687 BC). There is no reference to the last two, but the first two are listed and the events are described.

If, on the other hand, we start with what seems to be the full record, based on archaeological data of destructions in the Mediterranean, then we need to start in 806 BC. The record would have to include the additional Katun 4-Ahau (ending in 806 BC) through Katun 13-Ahau (ending in 768 BC). (Katun 4-Ahau, Katun 2-Ahau, and Katun 13-Ahau.) But there is no reference to these Katuns. Most likely this is because there were no Long Count records compiled before 747 BC. Checking back at later times, nothing was seen of the first four close passes of Mars, except as implicit in the name "Bolon Dzacab," "Nine Lives" -- for Mars did show up a total of nine times.

It is interesting that Mars is known as "Nine Lives" during the 8th and 7th century BC -- when he had also appeared close to Earth nine times before 3147 BC (as I surmised from Eastern Mediterranean sources). At first I thought that it was the nine appearances in the 8th and 7th century BC that became the basis for his name. But it seems to be a coincidence. His name was selected in remote antiquity, before 3147 BC, later known as "this first Bolon Dzacab." The giant greenstone mask-shaped floors at Olmec La Venta, apparently buried as a means of warding off or appeasing Mars, represent the face of a Jaguar in the form of the glyph for "nine." This name might thus have existed before it could have been determined how many times Mars would show up during these two centuries.

It is strange that the first four close passes of Mars between 806 BC and 747 BC were not recorded and, in fact, there were apparently no preventative ceremonial sculptures dedicated to Mars in the Olmec Veracruz region of Mexico during this period. Tres Zapotes, which had taken over primacy from San Lorenzo in about 850 BC, continued to carve "Venus heads" during the 100-year period before 747 BC, and thus only paid attention to the simultaneous appearance of Venus and Mars in 776 BC.

But the close pass of Mars in 747 BC seems to have destroyed Tres Zapotes, and La Venta was established to celebrate (or ward off) the comings and goings of Mars. La Venta was aligned to a sunset over the mountain Popocatepetl for the day of the Earth shock of 747 BC, when the length of the year changed (but not the axial inclination) and the Olmec Long Count was instituted. The close pass of 747 BC, plus the next four (a total of five), were all remembered at La Venta.

The actual date for the alignment at La Venta is February 28th, but for an angle representing a sunset under the condition of an axial inclination of 30 degrees for the Earth. There are two additional alignments, representing a sunset on April 19th, to the mountains Citlaltepētāl and Volcan La Malinche, also selected for an axial inclination of 30 degrees. After 685 BC, when the axis of the Earth changed to an inclination of 23.5 degrees to the normal of the orbit, La Venta was reconstructed to have its long axis at right angles to a sunset on February 28 for the current axial inclination of 23.5 degrees. (Details in a later chapter.)

Thus the close pass of Mars in 747 BC was noted in the construction of a ceremonial center, and the visit is recorded in the *Chilam Balam*, appropriately in a Katun 11-Ahau -- the Katun which ended the previous era on February 28, 747 BC. A little later in the text the nine concurrent visits by Mercury are recorded as the descent -- with Bolon Dzacab -- of Bolon Mayel, Nine Fragrances. I'll detail Bolon Mayel further below.

"Then it was that the lord of (Katun) 11-Ahau spread his feet apart."

"Then it was that the word of Bolon Dzacab [Mars] descended to the tip of his tongue."

Bolon Dzacab ("Nine Lives") is Mars, to be distinguished from the Mars seen before 3147 BC, who is called "this first Bolon Dzacab," and also differing from Lahun Chaan ("Ten Sky") who appears to be Mars for 300 years after 3067 BC. The "tip of the tongue" is the bottom of the electric arc from Mars (or an extended cone of plasma perhaps in the form of dust). Mars, as God K or God G-II, is often depicted in Maya iconography with a single leg, acknowledged as representing lightning. (On the much later Aztec "Calendar Stone" he is presented in the center with his tongue hanging down.) "Spread his feet" refers to how a growing child is carried on the hip (after Luxton). It is thus a simile for "establish."

The text here is perhaps with reference to all of the period of 806 BC to 747 BC. But notice that, as elsewhere, nothing is said of the change in calendars which

happened after 747 BC. (There is, however, a note about the introduction of a calendar at the time of the "third creation," listed on a separate page of the *Chilam Balam*.) Except for the complaints about the rulers who imposed themselves on the Olmecs or Maya, no civil events are ever touched upon in Book 10.

With respect to the phrase "tip of his tongue," there are some Olmec rock carvings from this era of an iguana (or what looks like an iguana) with his tongue reaching up and touching the bottom of cloud glyphs. Cloud glyphs look like pancakes with down-curved edges. It would be appropriate of Mars appearing in the skies, reaching down to Earth with a sustained lightning bolt. Although the tongue here goes in the wrong direction.

But the following Katun 9-Ahau, from 747 BC to 727 BC (further below) includes a surplus of observations, mostly in terms of flowers. Fragrances are also mentioned, which we recognize from Velikovsky's collected anecdotes, although Velikovsky places these in 1492 BC during the interaction with Venus. [\[note 23\]](#)

The Day of Kan

Another event is inserted here, related, as the text states, to Katun 9-Ahau, but we are no longer in the 8th century BC. It is, in fact, in error. The event listed below, the fall of the Absu -- the flood of Noah -- happened in Katun 2-Ahau (2.0.0.0.0), corrected to end in 2347 BC. There is, of course, a Katun 9-Ahau before the "flood of Noah," 148 years too early, just as there is a Katun 9-Ahau after the "flood of Noah," 40 years too late.

I am inclined at this point to suggest an alteration of the original text which was made on purpose in antiquity. More on this below.

"Then the charge of the Katun was sought; nine was its charge when it descended from heaven. Kan was the day when its burden was bound to it."

"Then the water descended, it came from the heart of the sky for the baptism of the House of Nine Bushes."

Except for the fact that we are presented with a deluge, the rest does not make much sense at first.

Bolio translates these two lines as:

"Nine were their cargoes when he came from the sky. The day of Kan was the day when his cargo was tied up. It was when the water came from the sky for the second birth, from the house of the one of the 'innumerable years.'"

This relates the fact that we are in a Katun named 9-Ahau, as well as the fact that the event, the baptism, happened on the day of Kan. The author of the *Chilam Balam*, on the basis of his sources, has full confidence that the "day of Kan" should be associated with the "second baptism." I will address this first.

The "second birth" is a second flood. The flood is suggested by Bolio. The history we are dealing with ignores hurricanes and tsunamis, and has so far only listed one other flood, the event of 3147 BC. The flood mentioned here is the only other mention of a flood. Notice that it "came from the center of the sky" and that it baptizes (wets) the "House of Nine Bushes."

I think we are looking at the event which in other parts of the world is recognized as the "flood of Noah." The "House of Nine Bushes" is the Absu or Duat, the last described in Egypt (at 30 degrees latitude) as consisting of seven rings. In the Yucatan (at 20 degrees latitude) it was seen as consisting of nine rings -- or rows of bushes. The Maya or their predecessors saw an additional two rings closer to the Earth's equator.

In Egypt and Mesopotamia the seven rings of the Duat or Absu were understood to be an ocean in the south, but also as access to the "Underworld." In the Yucatan the 9 layers were also the underworld, the domain of "The Nine." But the Olmecs or Maya did not equate the rings to a sea, as far as I know. This may be because of the steep angle at which the rings stood in the sky, and the intimate contact of the land with real oceans.

This passage, like so many others, is not only displaced from its proper sequence, but also seems referenced to the wrong double-decade (Katun). The question thus remains, if most of the other events are properly slotted in Katuns of the correct names, why is this "flood" event -- plus the appearance of the Moon, the first showing of the Pleiades, the appearance of the rafters of the sky, and the polar plasma plumes -- all of which deal with the flood of Noah, late by 40 years? The "flood of Noah" can be placed with good certainty in 2349 BC from the efforts of many chronographers of the Mediterranean region (and matches good guesswork from China in 200 BC).

First, it could be suggested that the assignment of the "second baptism" to Katun 9-Ahau is a transcription error and that Katun 9-Ahau was misread from Katun 4-Ahau.



[Image: 4-Ahau and 9-Ahau.]

Errors in transcription, both at the time the *Chilam Balam* was written and at earlier times, are certain. Roys notes a number of them for the *Chilam Balam* text. J.E. Thompson has noted some dozen errors in the *Dresden Codex*, dating from about AD 1200. Vincent H. Malmstrom, in *Cycles of the Sun, Mysteries of the Moon* (1997), has noted a transcription error in Stele C from Tres Zapotes. The task of transcribing the codexes to new plaster-coated bark books by painting the glyphs, illustrations, and diagrams, must have represented a mind-numbing task which could easily result in subtle errors, like the addition of a bar to the glyph for 4-Ahau.

But there is a more elegant solution which comes forward to resolve the "Katun 9-Ahau" issue. The details, which I have promised a number of times in this text already, are as follows:

The day-name "Kan" is the fourth day of any Katun. The first day of Kan in the Katun 9-Ahau after the "flood of Noah" is July 26, 2286 BC -- 2.2.0.0.4 2-Kan, on the "August 11" correlation (this will suggest that it was a very old alteration of the text). If the year is wrong, it is the only one in all of the *Chilam Balam* (making allowances for the scribe's insistence of placing all planetary events in Katun 9-Ahau). With both the Katun and the day listed, it would seem to pinpoint a very certain date. It could signify the completion of the fall of the Absu, but this would have been accomplished in a few days, not 40 years later.

However, July 26th was the celebration of New Year (as "the day of Kan") among the Maya when the Spanish invaded in the 16th century. Bishop Landa (in circa AD 1590) mentions that the new-year day of the Maya was on July 26 and always fell on the Tzolkin days Kan, Muluc, Ix, and Cauac -- in rotation. July 26 was celebrated as the new-year day, not only by the Yucatan Maya and regulated by the priests of the ceremonial center of Edzna, but also at Teotihuacan in Mexico, a thousand miles west from Edzna. Teotihuacan was established in circa 200 BC as an Olmec outpost. Of course it should be

understood that this was not our calendar date of July 26th, but is the day when the Sun rose and set at a certain location along the horizon, which today equates to July 26th. For both Edzna and Teotihuacan this included the passage of the Sun directly overhead.

The resolution of why Katun 9-Ahau was understood to be the year of the end of the "third creation," rather than the correct year of Katun 4-Ahau, is buttressed by four concepts.

First, it was known that a calendar had been instituted at the time of the "second baptism" (as was true worldwide). Actually, I suspect that this was the addition of 13 numbered days to the established 20 day-names of the Tzolkin calendar.

Secondly, the start of the year was celebrated among the Maya, as at Teotihuacan in the Valley of Mexico, on July 26th. July 26th actually celebrated the day after the delivery at the Sun of the plasmoid from Jupiter in 685 BC. If this last was a "fourth creation" of the world, it might seem reasonable to the Maya that the previous creation of the world would also start on the same Tzolkin day-name.

Third, the Maya and the Olmecs seemed to have been convinced that the Tzolkin calendar determined celestial events. I'll explore this more in a following chapter. It was this thinking which led to an active search by the Maya (or more likely, the Olmecs) for the "day of Kan" among the records of the past -- a day of Kan which fell on the equivalent calendar date (sunset location) of July 26.

We must allow that the Maya were perfectly capable of calculating backwards to discover on what day in prehistory the setting Sun on July 26th coincided with the fourth day, named Kan, of a newly started Katun.

Of course, a day named Kan falls on July 26th every few years (at about 20-year intervals). However, the Long Count date of 2.2.0.0.4 2-Kan is **the only instance** in the whole Long Count calendar -- 5200 years -- that the **first day** of Kan falls on July 26.

"The day of Kan," July 26th, marked the end of the nova event of the Sun in 685 BC (the termination by the plasmoid of Jupiter) as it was celebrated a few hundred years later. Even though July 26 did not fall on a day of Kan in 685 BC, it became celebrated as the "new year day" among the Maya, having inherited this significant date from the teachings of Olmec Teotihuacan. Much later, before perhaps 300 BC, scribes assigned this "important date" to the event of the "second baptism." The Katun during which July 26 fell on the first day of Kan,

was researched and found to have occurred only once in five thousand years since the start of the current era -- in the second Katun of the second Baktun (2.2.0.0.4). [\[note 24\]](#)

Last, as was known among the Maya, all important celestial events happened in Katun-9 periods. The first day of Kan, July 26th, also occurred in a Katun-9.

This has to be the solution to this apparent error in chronology. We are looking at a correction to the historical records, made in antiquity, which seemed eminently reasonable at the time. There is no way that we can manipulate Katuns and Baktuns to account for the difference of 40 years and find the "day of Kan" elsewhere in the past. We could attempt to add together surplus days to the solar year for the periods between 747 BC, 1492 BC, 2193 BC, and 2349 BC, but these will not add up to 40 years. [\[note 25\]](#)

If the Olmecs in antiquity investigated the "day of Kan" for the end of the "third creation," they must have had something to go on besides the notion that the recreation of the world would (or should) have happened when the first day of Kan of a Katun fell on July 26th. I would suggest that, because Jupiter had shown up in a full display three days after September 8th, 2349 BC, this would be "day three" of a Tzolkin calendar round which started with the plasmoid from Venus. The next day is the "day of Kan" -- always the fourth day of a new Katun, and New Year's day for the "third creation."

The error in assignment in the *Chilam Balam* stems from the fact that the day of the "third creation" simply could not be retrocalculated 1600 years later when the Long Count was adopted, and certainly not another 800 years later, when the Maya attempted it (using a 365.24-day year), for the length of the year had changed three times since 2349 BC.

The Maya knew the Tzolkin calendar governed the Gods responsible for creation, and so the new Katun would be a Katun 9-Ahau. This was logical since it was well known from 747 BC that all of pre-history could be assigned to a previous Katun 11-Ahau. Katun 9-Ahau follows directly on Katun 11-Ahau.

It is also possible that a Katun 9-Ahau had actually started at the time of the "third creation" in 2349 BC. In which case the fourth day would be a day of Kan. This is the day after Jupiter returned from the dead. What a separate page of the *Chilam Balam* says, as part of a list of events associated with the fall of the Absu (the flood of Noah), is:

"And then days of the year were introduced."

Let's assume from this that the 260-day Tzolkin was introduced on September 6, 2349 BC, using a rotation of 13 days to follow the waxing and waning of the Moon (even though the Moon may not have shown up exactly that soon). It is difficult to imagine how soon this calendar was devised. But once established, it would have been obvious that the fourth day of the new calendar, which would have been a New Year's Day, was a day of Kan. This would celebrate the end of the "third creation."

Since Baktuns and Katuns had certainly been tallied since 3147 BC, it is very possible that this day of Kan -- September 9, 2349 BC -- was indeed the fourth day of a Katun named 9-Ahau. That also means that, as had happened in 3147 BC, the previous Katun would have been named 11-Ahau -- the Katun which always represents all of prehistory. This coincidence of ending an era with a Katun 11-Ahau would happen again in 747 BC. And a day of Kan shows up on a retrocalculation for April 19, 1493 BC (Exodus, my date of 1492 BC).

Thus if a "day of Kan," which coincided with an equivalent calendar date of July 26th, was found as the fourth day of a Katun 9-Ahau, then the Olmecs would have been justified in suggesting that during this particular double decade the world had been recreated. Even though 40 years late, only Katun 9-Ahau of the second Baktun (2.2.0.0.4) qualified in the complete record of the 5200 years of the cycle of 13 Baktuns.

Now to a previous sentence, which seems out of place. This is a sentence which may need to be separated from the line about "the baptism of the House of Nine Bushes":

"Kan was the day when its burden was bound to it."

The day of Kan here is most likely 6.3.4.5.4 17-Chen 2-Kan which is July 14, Gregorian, 685 BC (July 21, Julian). It is the day, I suspect, that the plasma bolt left Jupiter in 685 BC. The "burden" which "was bound to it" is the plasmoid from Jupiter. The day of binding was the start of the travel from Jupiter. "It" is the day named Kan, not any other entity.

The "day of Kan" had been known to be the day that creation ended in remote times, both in 2349 BC (although later assigned to the wrong Katun) and in 1492 BC (of which the time-keepers were more sure). A change to the August 13

Tzolkin calendar had found that the equivalent calendar date of the latest change, July 14, 685 BC, also happened on "the day of Kan."

This note about the "day of Kan" when "the burden was bound to it" -- bound like a pack carried by a trader -- is the fourth chronological reference to the events of the year 685 BC. This date only becomes important later, when we learn that it signifies the decision of Jupiter not to destroy creation.

The calendar dates mentioned above become clear on an inspection of alignments with horizon location for Olmec coastal and Valley of Mexico ceremonial sites (for which see a following chapter). Alignments were made, at different sites, for April 19th (representing the Earth shock of 1492 BC), February 28th (the shock of 747 BC), and July 9th, 21st, and 25th (all dealing with Jupiter in 685 BC). The start of the blazing of Venus and Mercury in 685 BC, 40 days before July 25th, was not celebrated. The Maya, and, in fact, all of Mesoamerica, only celebrated completions, not the start of events.

The Flowers

The next few lines first attribute the deluge (of 2349 BC) to Mars. The reading seems to present a simultaneous close passage of Mars, as Bolio's translation, above, suggests. Any passage of Mars would have brought torrential rain storms and hurricanes to the region, in addition to destruction. The lines following this do not return to the topic of Mars, but introduce a new player, Mercury.

"With it descended Bolon Mayel [Nine Fragrances]; sweet was his mouth and the tip of his tongue. Sweet were his brains."

I suspect that the insertion further above is meant to relate the "water from the sky" (at the time of "Noah's flood") to Mars in the 8th century BC (or Mercury, as here), even though no mention is made of rains or hurricanes associated with Mars. I have a note further below on the sudden topical grouping of events by the author.

"Sweet was his mouth, etc.," -- Meaning either that this celestial agent was not a threat to humans, or the sweet mouth is associated with the "fragrances."

"Bolon" -- nine -- suggests nine appearances of Mercury. Mercury might have been seen close to Earth nine times. But I think that this started in 806 BC. As I have suggested earlier, the orbit of Mercury was elongated since 3147 BC, extending past the orbit of Earth, -- rather equivalent to what Mars was doing. It

was also apparently in sync with Mars, possibly showing up near Earth directly after Mars did so or at the same time. The two planets were known throughout the world as "the twins." The Earth shock by Mercury in 686 BC follows directly on an appearance of Mars, as substantiated by a note on the timing of this further below in the *Chilam Balam*. "With it descended.." affirms that Mars also showed up 9 times.

More on Mercury after another interruption. At this point the text returns to Mars, or the satellites of Mars, rather than Mercury, except that the "honey of the flowers" would have to refer to Mercury.

"Then descended the four mighty supernatural jars [or, two mighty demon bats], this was the honey of the flowers."

Roys's footnote reads:

"For this sentence the following is substituted in the Mani and Tizimin versions of this narrative: 'Then descended two mighty demon bats who sucked the honey of the flowers.'"

That might make sense in representing the two satellites of Mars, which are elsewhere in the world described (during this period) as raging spirits, scorpions, snakes, and chariot wheels. Mars, lacking a magnetic field, would have had a closely held plasmasphere (coma), which might very well have consisted entirely of ionized dust (as is seen today). Once Mars entered Earth's plasmasphere the coma of Mars would have expanded to meet the Earth's electric field, rather than being subjected only to the Sun's much lower electric field outside of Earth's plasmasphere. The two satellites of Mars would have continuously distorted the coma of Mars. Seen on the day side of Earth, this might have presented itself as a flapping dark shape. (The satellites of Mars would be seen east and west of the globe of Mars because Mars passed Earth laterally.)

As I have noted before, according to the modeling by Patten and Windsor, Mars would alternately appear near Earth in going toward the day side of Earth and going toward the night side of Earth. That might account for the appearance of "two" mighty demon bats, rather than 4 or 5 (between 747 BC and 687 BC). Thus two times out of the five recorded appearances of Mars.

This would have happened in the fall of the year, and likely represented a passage of Mars on the day side. The spectacle in the skies, back-lighted by the

Sun, would have been astoundingly different from the view of a passage of Mars at night. We may have to assume that the Mani and Tizimin versions of the *Chilam Balam* corrected the information presented in the books of Chumayel.

The "four mighty supernatural jars," on the other hand, might also describe Mercury. After four appearances with Mars (and likely closely following it), the fifth appearance of Mercury was distinctly different, for it was jolted by Earth (686 BC), and disappeared to a new orbit close to the Sun. Nothing is made of the "burning tower" apparition, however.

Thus, after having mentioned the appearance of Bolon Dzacab, Mars, in 747 BC, the *Chilam Balam* now has reference to the four additional appearances of Mars -- as "mighty demon bats" or "supernatural jars" rather than as Bolon Dzacab. This coincides with the four giant heads found at La Venta, which were buried in a line north of the pyramid.

Since the "mighty demon bats" suck the honey of the flowers (mentioned above), it suggests the near simultaneous appearance of Mars and Mercury in the skies. The Olmec Jaguar sculptures at La Venta, and later, add the snout and fangs of a snub-nosed bat to the jaguar face. [\[note 26\]](#)

Of course I have here selectively taken the number of appearances from one source (four jars) and the description from another (two bats). But I think the number "four" is completely justified from the number of heads found at La Venta, and the "bat" description is justified from the sculptures of bat-faced jaguars at La Venta.

In the next few lines of the text, all about flowers, clearly refers to Mercury, which has a minor magnetic field, and would thus support tri-lobed plasma forms at its poles -- looking like flowers. Mars, without a magnetic field, would not.

"Then there grew up for it the red unfolded calyx, the white unfolded calyx, the black unfolded calyx and the yellow unfolded calyx, those which were half a palm (broad) and those which were a whole palm (in breadth)."

The four colored "calyxes" again look like a distribution to the four compass directions. The half palm and full palm widths describe the lower and upper tri-lobed plasma cones above and below the magnetic poles of Mercury. I should point out that Mercury and Mars were seen in a side view from Earth, since the

rotational axis of both planets would parallel that of the Earth. Thus the flowers of Mercury would have extended in a north and south direction.

The flower forms, by the way, are understood in Egypt and the eastern Mediterranean region as wings. From this we have the "winged disk" iconography, which is clearly associated with Mercury.

The north magnetic pole would have a much larger size ("a whole palm") flower form. If these represented the polar plasma forms of a planet, the planet need not have come that close to Earth, since Mercury's coma might easily have been twenty times the diameter of the planet itself, with the polar plumes much larger. Yet, what a threatening image this would have presented! It is a palm held at arm's length. The "whole palm" representing the size of the flower shape at the top, and the "half palm" representing the width of the flower shape at the bottom. A "palm" in width is about 5 degrees of the sky -- ten times the diameter of the Moon.

"Then there sprang up the [1] five-leafed flower, [2] the five drooping (petals), [3] the cacao (with grains like) a row of teeth, [4] the 'ix-chabil-tok,' [5] the little flower, [6] 'Ix Macuil Xuchit,' [7] the flower with the brightly colored tip, [8] the 'laurel' flower, and [9] the limping flower."

On a whim I decided to count the specific flower species, as listed above, to see if this would account for the name Bolon Mayel, "Nine Fragrances."

Bolio has:

And at the same time blossomed [1] the flower that is watered and [2] the one that has holes; and [3] the wavy flower of cocoa and [4] the one never sucked on [this is Ix Macuil Xuchit, "Five Flower," the Mexican god of music and dance], and [5] the flower of the spirit of color, and [6] the one that always is a flower, and [7] one with a crooked stem."

With Bolio's rendition we are two flower species short of a count of nine, and obviously there is a pun inserted in the middle of the list. It is interesting that these flower forms could be counted over a period of 120 years from 806 BC, if, as I have assumed, Mercury accompanied Mars in these instances, even though the record of Mars is only shown for the instances after 747 BC. The last appearance of Mercury, in 686 BC, was aborted, of course.

"After these flowers sprang up, there were the vendors of fragrant odors, there was the mother of the flowers."

Fisher adds the following to Bolio's translation,

"These flowers that came out were the 'Comayeles' [Ah Con Mayeles, 'the offerers of perfume'], the mother of flowers."

Roys notes,

"In the Tizimin and Mani versions we find: 'there was the house of the flowers.'"

... meaning that it (or something) was seen as a celestial apparition.

This is followed by yet additional complaints about rulers. But first let me point out again that both the "flowers" and the "fragrances" could only refer to a planet with a magnetic field and with an atmosphere. This could not be Mars. In fact, I will also suggest that the "house of flowers," mentioned above, is Jupiter, to which the text will get soon. On about June 9th Jupiter developed a coma and became a "house of flowers." "House of flowers" is a Mesoamerican name for a pyramid, actually, "flower mountain." The lightning bolt to the Sun did not leave Jupiter until July 14th.

"Then there sprang up the bouquet of the priest, the bouquet of the ruler, the bouquet of the captain;"

"... this was what the flower-king bore when he descended and nothing else, so they say. It was not bread that he bore."

"So they say," is a reflection on earthly rulers. Bolio has:

"When the latter [the flower God, Mercury] came down he had no equal. 'Look at him,' they said, 'he does not spill his cargo.'"

... which has a somewhat different sense. It suggests that the flower shapes were not dropped to Earth, or (more likely) that no electric contact was made with Earth. How Bolio arrived at this reading, which seems correct, is inexplicable. It would seem to suggest that the close passages of Mercury were harmless to Central America -- in clear distinction to the destructiveness of Mars. Mercury may not have come very close, like Mars, but remained at a considerable

distance. The last contact with Mercury, at any rate, was felt in Southern North America in Alabama. (As developed in an earlier chapter.) From this, too, we would get the sense that the text has shifted entirely to a description of Mercury, and perhaps the reference to the satellites of Mars, above, is in error.

The sense to me is that the lines about the rulers are an editorial comment on the crop surpluses required by the ruling elite and the luxury goods being extracted from the citizens by the Maya ceremonial centers and through the long-distance trade which flourished since about 1500 BC. Unlike Egypt, and especially Mesopotamia, where feathers, metals, and precious stones were collected for the benefit of the gods of the temples, these goods (plus the food staples required to sustain both the trade functions and the leadership) were for the personal consumption and adornment of the rulers. This is similar to the situation in China. The rulers, in their shamanistic functions, were more important than the Gods. [\[note 27\]](#)

A few more lines on flowers, but now we turn to Jupiter:

"Then it was that the flower sprang up, wide open, to introduce the sin of Bolon-ti-ku [Jupiter]."

"(After) three years was the time when he said he did not come to create Bolon Dzacab [Mars] as the god in hell."

The "sin of Bolon-ti-ku" is a plasma display, but initiated by Jupiter, not Mars. This text seems out of place and recalls the final event of the Venus nova, except that mention is made here of Mars, not of Venus (as in the Mediterranean). In other chapters I have spelled out the details of how this event was differently seen and understood in Mexico from how it was seen and understood in Europe and Asia.

The sentence makes it clear that Jupiter, who was still considered the reigning God, has decided that Mars would not be the agent of death for the current creation, "the God of hell." As the Sun's electric field expanded outward into the region of the planets, it not only caused Venus and Mercury to blaze like suns, but Jupiter suddenly needed to adjust to a completely different electric potential. The flower which "sprang up" to initiate ("introduce") the plasmoid is the coma and funnel-like plasma extensions above and below the poles of Jupiter. This is clearly shown in the earliest iconography of the Olmecs, after 650 BC.

The eruption of Jupiter was followed by a plasmoid bolt ("the sin") directed toward the Sun, and although it was understood to be directed at Venus by the people of the Mediterranean region, it was understood to be directed at Mars by the people of Mesoamerica -- a difference of a half day in seeing the plasmoid land (or not seeing but guessing).

The timing of the plasmoid event was carefully preserved in the original documents and is here quoted by the *Chilam Balam*, probably as a matter of pride in how the cycles of the Tzolkin constituted high science. But the numbers initially do not add up.

"(After) three years.."

Mars was in inferior conjunction with Earth on February 22, 687 BC (-686 Julian). If we add three solar years (of 365.24 days), or Tun years (of 360 days), or even three Tzolkin cycles (of 260 days) to the last date that Mars was seen, we will pass beyond the year of the Venus and Mercury nova event in 685 BC. The word "after," however, was added by the translator, Roys. The sentence should have the meaning of "in the third year," in effect another inclusive span of time.

I certainly don't think we are dealing in solar years here, but in Tzolkin cycles instead. If we add just two Tzolkin cycles of 260 days, we reach July 25, 685 BC on the Gregorian calendar -- the traditional day before New Year's day of the Maya and Olmecs, and the day when the lightning bolt of Jupiter landed at the Sun. This is no mere coincidence. The records of the past as maintained by the Olmecs and subsequent Maya have proven to be dead accurate.

This is also the third instance of inclusive counting in reporting an interval. Since we are dealing with Mesoamerican concepts and language, we have to recognize that the first Tzolkin cycle is completed on the day after Mars was last seen on February 22, which is 6.3.2.15.16 14-Uo 1-Cib on the Long Count (August 13 correlation). The day of 1-Cib has to be counted, for it completes the previous Tzolkin cycle. This is how "three years" is arrived at. The "three years" represent an interval of 520 days, two Tzolkin cycles.

This reference to the 520-day interval is the fifth instance of chronological details of the events of the year 685 BC.

The text about Nine Fragrances starts with a shift to Katun 9-Ahau, the next in order after Katun 11-Ahau, when the first recorded approach by Mars was made

(in 747 BC). This would propose that the nine descendings of Mercury are a count of both planets, extending only from 747 BC (the close of the previous Katun 11-Ahau) to 687 BC (the end of Katun 5-Ahau), where for the first and the last visit he is properly identified as Bolon Dzacab, Mars. That would extend the visitations to a total period of 60 years, ending with the last visit in 687 BC. The date of 687 BC (actually -686) is the year which Velikovsky had identified as the year of the second Earth shock received from Mars, although actually this last contact was by Mercury.

Reconsidering now the comment about Mars, it might be suggested that it was the sacrifice of Venus (Quetzalcoatl) which appeased (or controlled) Jupiter. This could certainly have set the tone for human sacrifices for the next 2000 years. Quetzalcoatl, Venus, not only died, but was fully expected to return from the dead, as Jupiter had done a number of times. The reappearance of the coma of Jupiter, which had not been seen since circa 2150 BC, had demonstrated that. Jupiter, too, had died by fire.

Was the decision by Jupiter "not to end the world," or, as the "Chilam Balam" reads, "not to create Bolon Dzacab [Mars] as the god in hell," the promise of a new religion, a new religious practice, or a new contract between God and man? This certainly was the reaction in the Eastern Mediterranean region, as it was in China and India. Perhaps it was also understood this way by the later Maya who listened to the recital of this text that Kukulcan had been the savior of the world. This suggestion would be fully in line with the other couched references to Kukulcan -- Quetzalcoatl -- found in the remainder of the *Chilam Balam* text.

Saturn

The next section, which continues with descriptions of flowers, is, I feel, completely misplaced, perhaps placed here at an early time when the actual sequence of events was already no longer understood. I suspect that the following sections are from a source completely different from the text above.

What here follows is a portrait of Saturn from the earliest time in remotest antiquity. This is followed by a portrait of Jupiter. The portraits of the first two stationary Gods on their mats is deserved. The visitations made by Venus and Mars are ephemeral in comparison. It was Saturn and Jupiter who were the two supreme Gods who sat in rulership in the sky, a thousand years for Saturn, 4500 years for Jupiter, although during Jupiter's reign there were, as elsewhere in the world, numerous other Gods who acted as his agents or provide the role of

intermediary. This is followed by a section which turns "rulership" over to the God of the Christians.

The portrait presented of Saturn is more than descriptive, for it records a sequence of events which is missing from the first description of Saturn at the start of this document: the changes from the time the bees blinded his face and the descent of fire and the rope, to the point of his demise at the hands of Jupiter in 3147 BC.

"Then descended Pizlimtec to take the flower [the root of the flower]; he took the figure of a hummingbird with green plumage on its breast, when he descended."

As will have been noticed, over the last few paragraphs the collection of events has been sorted topically into like images -- Mars followed water from heaven, and here the flower of Saturn in 4077 BC follows the flowers of Mercury in the 7th century BC.

Pizlimtec is the God of music and song, or a human revered as a musician. So says Roys. This might also represent one of Peratt's plasma instabilities represented by the Kokopelli petroglyphs, the flute player, which have been carved as petroglyphs and painted on cliffs worldwide. Except, of course, that here he is transformed into a quetzal bird.

The hummingbird with green plumage can be equated with Venus, although as an overall description of the bird on top of the central tree of heaven, and thus the whole Saturnian Polar Configuration. But in the limited context of this description, the "descent" is more likely the visual lowering of Uranus as the Earth started to take up an orbit below the Saturnian System. That started to happen perhaps as early as 5800 BC. Because of the smaller size of Uranus compared to Saturn (even with the considerable offset from the north pole of Neptune), by 4077 BC Uranus had probably disappeared visually behind Saturn.

"Then he sucked the honey from the flower with nine petals."

"Then the five-petaled flower took him for her husband, Thereupon the heart of the flower came forth to set itself in motion."

Uranus (if he is Pizlimtec) is male here. In the previous text he was identified as Saturn's sister. This suggests, of course, diverse sources for the *Chilam Balam* texts, or differing "readings" of the illustrations. The "heart of the flower" is

Mars, which as we know from Mesopotamian and Egyptian texts, will start to lower toward Earth and wander away from the axis of Saturn.

The observation of a flower of nine or five petals, with Uranus lowering into the flower, taken together with the bees which initially wrapped the face of Oxlahun-ti-ku, Saturn, is a reminder of one of the oldest insignias of the pharaohs of Egypt, the bee and the sedge, neither of which has ever been explained as a symbolic source of power or majesty, and has only with difficulty been related by archaeologists to bees of Lower Egypt and the sedge of Upper Egypt (when it should be the other way around).

But a flower of nine and five petals can only be the much later plasma streams from Saturn to Mercury and thence to Mars, both located below Saturn, after Saturn went nova.

Or, following the next entry (see below), this might place the event (allowing Uranus to be seen as a distinct entity) much earlier than my estimate, well before the Earth had taken up a station below Saturn, for there is no other way to record the visual effect of seeing Uranus being lowered into Saturn. But it depends on how "and" and "then" are translated from the Mayan. We should also realize that the author was reading old books which conveyed little sense of the scope of time, so that 1000-year and 2000-year intervals passed unnoticed.

"Four-fold [four branched] was the plate of the flower, and Ah Kin Xocbiltun was set in the center."

Ah Kin Xocbiltun is Pizlimtec, claims Roys. But Bolio translates the last line as, *"When the chalice of this flower was opened, the Sun [Ah Kin Xocbiltun] was within and in its middle his name could be read."* The glyph for Sun, "Kin," looks like a flower with four petals and a small central circular area, like a four-petaled daisy. The dot in the center is Mercury. The sign or hieroglyphic for "Sun" used elsewhere in the world (Egypt, Mesopotamia, China) is a circle with a central dot, but here we have the addition of four streams of plasma in arc mode impinging on Mercury and seen from below. It is amazing that the illustration from thousands of years ago was misread in this manner, but not totally unexpected.

"At this time Oxlahun-ti-ku [Saturn] came forth, but he did not know of the descent of the sin of the mat, when he came into his power."

"The flower was his mat, the flower was his chair."

The sin of the mat, again, is a plasma discharge to Earth. The flower mat resounds throughout other people's mythology too. The Gods of the Canopic jars of the dead pharaoh sit on a lotus flower, as do the creation Gods of the Hindus. The flower mat might be the rings of Saturn, or more likely is Mercury. I suspect that the previous line and most of what follows is placed here in the text to give reasons for why Saturn has to give up rulership at some point. The Maya of the *Chilam Balam* are notorious complainers.

"He sat in envy, he walked in envy. Envy was his plate, envy was his cup. There was envy in his heart, in his understanding, in his thought and in his speech."

"Ribald and insolent was his speech during his reign. At that time his food cries out, his drink cries out, from the corner of his mouth when he eats, from the back of his claw [hand] when he bites his food."

"He holds in his hand a piece of wood, he holds in his hand a stone."

The stone is Venus, the piece of wood is Uranus.

"Mighty are his teeth; his face is that of Lahun Chan, as he sits."

Lahun Chan is Mars as Ten Sky. The implied look is that of a red planet.

"Sin is (in) his face, in his speech, in his talk, in his understanding (and in) his walk."

"His eyes are blindfolded. He seizes, he demands as his right, the mat on which he sits during his reign."

"Forgotten is his father, forgotten is his mother, nor does his mother know her offspring."

As almost everywhere else in the world, there is no history before Saturn shows up. Thus he has no parents or has forgotten them. This more or less contradicts what is found on another page of the *Chilam Balam*, where, if not parents, at least there is a long lineage of sacred stones leading up to Oxlahun-ti-ku (Saturn), as the Christian God the Father. This is detailed in Book 11 of the *Chilam Balam*.

"The heart is on fire alone in the fatherless one who despises his father, in the motherless one."

His "heart is on fire" is an exact expression of the change to arc mode of Saturn, or descriptive of surface flames like are seen on the Sun.

"He shall walk abroad giving the appearance of one drunk, without understanding, in company with his father, in company with his mother."

The drunken walk is also recalled from Vedic sources which claim that Saturn traveled in a circle in the north sky. I cannot explain the sudden addition of the mother and father, unless this is another reference to Venus and Uranus.

"There is no virtue in him, there is no goodness in his heart, only a little on the tip of his tongue."

"He does not know in what manner his end is to come; nor does he know what will be the end of his reign, when the period of his power shall terminate."

Bolio translates the last few lines as:

"His heart burning only among the orphans, insulting his father, he must walk in the midst of the homeless, his countenance drunk, his understanding lost, to the place of his father and his mother. He has no kindness; there is no good in his heart; only a little bit on the tip of his tongue. He does not know how he must end up; he does not know what there will be at the end of his reign, or what is going to end in time with his power."

The drunken walk among the "orphans" and "homeless" catches the circular movement of Saturn ablaze in the middle of its satellites.

Before leaving this section, I should point out my suspicion that this extensive description of the faults of Saturn is starting to sound like a prophetic analog of a hoped-for fate for the Spanish invaders.

Jupiter

The following portrait is of Jupiter, but almost at once changes to a couched prediction of the return of Kukulkan.

"This is Bolon-ti-ku [Jupiter]."

This line reads as if it is a caption to an image in a codex.

"(Like that of) Bolon Chan [Lahun Chan is meant here] is the face of the ruler of men, the two day [or, second] occupant of the mat and throne."

"The two day occupant" is, as before, probably a misreading of "second occupant" or "second reign," which would place the description as starting in 3147 BC.

Roys thinks that "Bolon Chan" ("Nine Sky") is a transcription error, since this name occurs nowhere else in any Maya documents or inscriptions, and that "Luhun Chan" ("Ten-Sky") was meant. "Ten-Sky," as I suggested above, is Mars after 3147 BC. "The face of" presumably just means "looks like," it does not mean "is." The concept, in fact, is that the face of Jupiter looks red, like Mars. This was probably not true initially, since at first, from 3147 BC to circa 2900 BC, Jupiter was green (or, at least so was the lower plasma expulsion). But on its return as a giant entity in the sky in about 2550 BC, it certainly was red. Bolio accepts Nine Sky as meaning "nine faces" and ends up with a reading of:

"These Nine gods ['Bolon-ti-ku,' Jupiter] will be manifested in nine faces ['Bolon Chan'] of Men-Kings, of the mat of the Second time, of the throne of the Second Time, came inside the 'beast Ahau Katun.'"

The *Chilam Balam* continues with the following, where Roys reads "beast" as "three":

"He came in Katun 3 Ahau."

I initially did not think that Jupiter was meant by "he" here. I thought the author was talking about Kukulcan and referring to the nova event of Venus in 685 BC, which falls in Katun 3-Ahau. But Bolio's "mat of the second time" or Roys's use of "two day throne" is probably meant as the second reign (not to be confused with creations), and thus the reign of Jupiter. What we are then being told here is that Jupiter reappeared in 685 BC in Katun 3-Ahau. That's true.

"After that there will be another lord of the land who will establish the law of another Katun, after the law of the lord of Katun 3-Ahau shall have run its course."

"At that time there shall be few children; then there shall be mourning among the Itza who speak our language brokenly."

"Industry (and) vigor finally take the place, in the first Tun (of the new Katun), of the sin of the Itza who speak our language brokenly."

The first Tun is the first 360-day period of the next Katun. It could be the next Katun after 685 BC, or it could be any Katun in the future. "Industry" had traditionally been attributed to the enterprising Itza.

"It is Bolon-ti-ku [Jupiter] who shall come to his end (with) the law of the lord of Katun 3-Ahau."

Take note of the three references to Katun 3-Ahau (and more below), and especially the line, *"After that there will be another lord of the land who will establish the law of another Katun, after the law of the lord of Katun 3-Ahau shall have run its course."* This is a veiled reference to the return of Quetzalcoatl, Kukulcan of the Maya, who disappeared in Katun 3-Ahau, but over the next few paragraphs this is turned into the God of the Christians. The "lord of Katun 3-Ahau" is Venus -- Kukulcan -- who shall, in time, that is, at some time in the future, end the reign of Jupiter, substituting another -- but not himself. This will fit history as it was played out with the arrival of the Spanish.

The End of History

A few lines of prediction, in effect incorporating the 16th-century condition of the conversion of the Maya to Christianity, complete the section. The prediction of another flood and the descent of Jesus on a cloud are perfectly in line with the history of the elder Gods.

"Then those of the lineage of the noble chiefs shall come into their own, with the other men of discretion and with those of the lineage of the chiefs."

"Their faces had been trampled on the ground, and they had been overthrown by the unrestrained upstarts of the day of the Katun, the son of evil and the offspring of the harlot, who were born when their day dawned in Katun 3-Ahau."

This is the fourth reference to Katun 3-Ahau. Some of these lines repeat text from the section "Interrogation of the Chiefs" elsewhere in the "Chilam Balam."

Bolio renders this a little more cohesively, although no clearer, as:

"When the Katun has ended, one will see the lineage of the noble Princes appear, and new wise men, and the descendents of the Princes whose faces were crumbled against the ground, who were insulted by the rage of the time by the crazy ones of their Katun, by the son of evil who called them "children of indolence"; those who were born when the Earth awoke, inside the Three Ahau Katun."

"When the Earth awoke in Katun 3-Ahau" is an interesting concept, and stands as the only reference to a change in the religious philosophy of Mesoamerica in the 7th century BC, although it is clearly demonstrated in the alignments of the ceremonial centers after 600 BC. No new alignments were ever added (except for additional alignments for 2349 BC).

Clearly also, in the above quoted paragraph, "those" refers to the Princes. In Roys's rendition it is not clear who "who were born" refers to -- it could be read as the "son of evil" and the "offspring of the harlot." Interestingly, this sort of language is to be found in the condemnations of Biblical prophets. The scribe thus betrays his Christian upbringing. From the very start of the Spanish overlordship the children of chiefs and officials were separated from their parents and educated separately.

"When their day dawned" becomes, with Bolio, "when the Earth awoke." That in effect suggests a "fourth creation" as yet to come. [\[note 28\]](#)

Roys's text continues with an "end of creation" scenario:

"Thus shall end the power of those who are two-faced toward our Lord God."

"But when the law of the Katun shall have run its course, then God will bring about a great deluge again which will be the end of the world."

"When this is over, then our Lord Jesus Christ shall descend over the Valley of Jehoshaphat beside the town of Jerusalem where he redeemed us with his holy blood."

"He shall descend on a great cloud to bear true testimony that he was once obliged to suffer, stretched out on a cross of wood."

"Then shall descend in his great power and glory the true God who created heaven and earth and everything on earth. He shall descend to level off the world for the good and the bad, the conquerors (and) the captives."

Typically, once again there will be a new creation, for God will level off the world. The promised deluge, however, never came.

Recap of Book 10

It should be clear to the reader that this Book of the *Chilam Balam* is only tendentiously in chronological order, and, from our perspective, the mark is missed. The copyist did not have counts of Baktuns (periods of 20 Katuns) available or neglected them. This seems odd, for the texts of the Temple of the Cross at Palenque correctly place past events in the proper Baktun. Otherwise we would have to assume that, for example, the reason the events of 1492 BC and the events after 2349 BC (the "third creation") were listed in reverse order was simply to adhere to the late Maya historical format of lumping all events of the same-named Katun together.

Some chronological order exists, as in how the prehistory (the "second creation") is grouped at the beginning and in correct order (and expanded on near the end), and the events of the 8th and 7th century BC are placed near the end (with the fall of the Absu in 2349 BC inexplicitly added). And another form is used also. Events are sorted into activities and like imagery. Thus, near the end, all the flower episodes are grouped together.

The conclusion is reached compositionally, calling up the imagery of Kukulcan, starting with the event of the Sun going off its course in 685 BC. The ending reads as a subtle attempt to simultaneously satisfy the politics of the new Christian overlords and not counter the traditions of the Maya citizens.

I have appended lists of Katuns for the time period of 3147 BC through 668 BC, with the events inserted. [\[note 29\]](#)

Special thanks to M Harris for corrections.

Endnotes

Note 1 --

The Maya, as well as other Mesoamerican people, certainly recognized the continuous progress of time along a single axis, as we do. So perhaps it would be more accurate to say that time was conceived of as the delivery the separate Katuns, which carried with them certain qualities which predetermined the conditions of the world when a Katun arrived. This would be similar to recognizing the seasons of the year as a repeating cycle, where each month brings with it certain weather conditions. The "weather" of the Maya Katun cycle extended over twenty-year periods.

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Note 2 --

Munro S. Edmonson, in "Some Postclassic Questions About The Classic Maya" (*Fifth Palenque Round Table*, 1978), writes about this:

"The Colonial texts produce the impression that their obscurity may have been partially designed to keep Maya traditions from the Spanish. They were not at all intended to be secret from the Maya peasantry, who are frequently apostrophized directly. And there are even now in Quintana Roo Mayas who can read and understand them."

But he immediately qualifies his opinion by pointing to an earlier tradition:

"It seems to me quite possible therefore that the glyphic texts of the Classic period could have contained a substantial esoteric and metaphoric element without necessarily impeding their intelligibility for the commoners and laymen to whom they must have been in part addressed. A certain deviousness and indirection may well be part of Mayan tradition. Flies are ancestors; the moon is the end; the sun is the beginning; stalks are lineages; monkeys are peasants."

My feeling is that Book 10 includes very little metaphorical material, although Book 11 and two other short pages of the *Chilam Balam* (dealing with earlier history) do, at a severe cost in understanding.

Amazingly, Richard Luxton in translation and commentary in *The Book of Chumayel* (1996), interprets all of Book 10 as a highly metaphorical poetical discourse on the political and social changes in the Yucatan in the late 16th century AD, based on a conflict and resolution between two calendars -- personified by Luxton as "The Thirteen" and "The Nine."

Book 11 does not escape this treatment either. I think this is nonsense created from the inability to make any sense of the texts. Luxton also frequently points up puns which make no sense. However, he also has the ability to clear up many strange words, like "opilla" and "expleo." More on these in the following chapter.

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Note 3 --

More recent archaeological finds have placed the first Maya monumental construction at 150 to 50 BC, and in some isolated cases as early as 800 BC (Takalik Abaj, in clay) and 600 BC (El Mirador, in stone).

Monuments raised in Palenque (in circa AD 700) present dates before 3114 BC, note celestial events in 2360 and 2305 BC, and record the birth of a "prehistoric king" of Palenque in 993 BC.

The first Tzolkin date inscriptions were in use at the Zapotec site of San José Mogote in the Oaxaca region by about 600 BC. By 400 BC the Tzolkin and Haab calendars were in use at Monte Alban (Oaxaca). The earliest Olmec long-count is depicted on Stele C from Tres Zapotes as 32 BC.

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Note 4 --

The *Popol Vuh* clearly notes that the authors had used four source books, and, in fact, the *Popol Vuh* spends more than half of the text with descriptions of events from the first two books, called "The Dawn of Life" and "Our Place in the Shadows." This is not the case here for the *Chilam Balam*, although Book 11, and an additional page do specifically source these two.

Most of the information for Book 10 of the *Chilam Balam* seems to rely on abstracts from the last two books mentioned by the *Popol Vuh*, the book called "The Light that Came from Beside the Sea" and the book called "The Council Book." It would be expected that the Maya had already consolidated events by same-named Katuns, for this represents the layout of Book 10. It would also be expected that the significant event of 2349 BC, the fall of the Absu, would be sourced from a separate book. But this event is inexplicably split up to different sections of the text. Book 11 of the *Chilam Balam* treats the event of 2349 BC separately.

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Note 5 --

In the *Popol Vuh* the tribal gods of the Quiche turn to stone when the Sun first shines. The Quiche continue to feed these stones with blood.

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Note 6 --

Considering the bees as satellites holds if Saturn (and later Jupiter) were close enough to Earth to be seen clearly. There are enough references to the satellites of both these planets among "mythological" sources from other parts of the world to confirm that this would have been the case.

I have only seen limited "bee iconography" among Olmec carvings or stelae, but there are some Maya murals depicting bees. Bees recur, however, in other pages of the *Chilam Balam* dealing with the history of much more remote times. There is an instance of wasps being used as weapons in the *Popol Vuh*, but this is likely a recollection of a particularly busy meteor shower.

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Note 7 --

The prominent satellites of Saturn (those discovered before the 20th century AD) number 7. Adding Uranus, Neptune, Mercury, Mars, and Venus, and Saturn itself, the number adds up to 13. I originally (before 2010) excluded Neptune (as not visible) and Mercury (not discovered by me until 2009), and added Iapetus (at an orbital radius of 3,561,300 km) and Phoebe (orbiting at 12,952,000 km) to make up the count of 13. But I have removed these two distant satellites from consideration. Venus, although strictly a satellite, is not listed below, although included in the count. This is the count after 4077 BC when Venus was expelled from saturn.

Moon Date	Radius (km)	Mass (kg)	Distance (km)	Discoverer
-----	-----	-----	-----	-----

- 7 satellites known before the 19th century, in order...				
Mimas 1789	196	.380e+20	185,520	W. Herschel
Enceladus 1789	250	.840e+20	238,020	W. Herschel

Tethys	530	7.55e+20	294,660	G. Cassini
1684				
Dione	560	10.5e+20	377,400	G. Cassini
1684				
Rhea	765	24.9e+20	527,040	G. Cassini
1672				
Titan	2,575	1350.e+20	1,221,850	C. Huygens
1655				
Hyperion	205x130x110	.177e+20	1,481,000	W. Bond 1848

Seven is the traditional number recognized in antiquity, as, for example, the "seven helpers of the king (Osiris)" in Egyptian mythology.

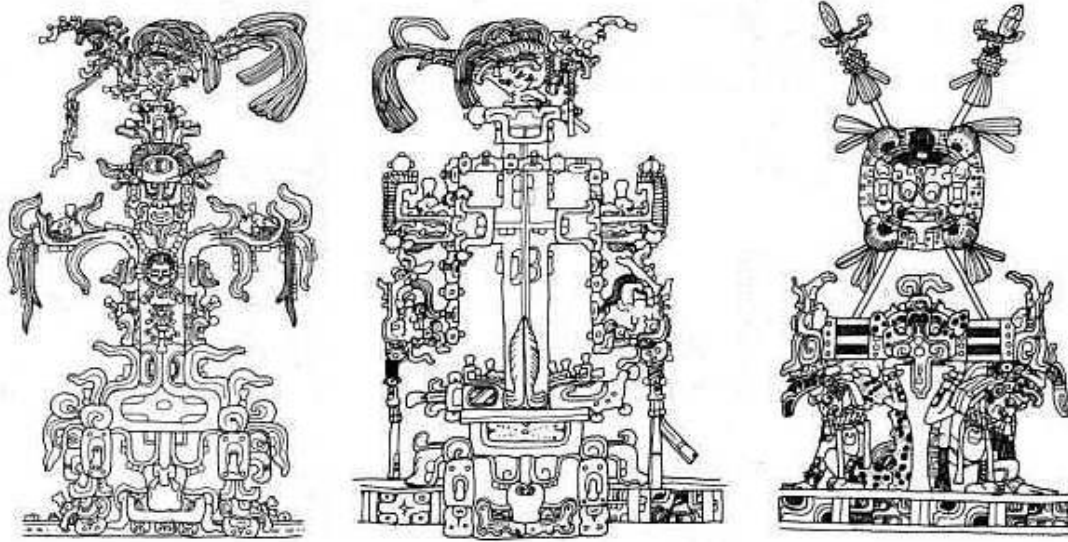
It was known in more remote antiquity among the Olmecs that Neptune was one of the stack of planets as related in Book 11 of the *Chilam Balam* -- See the chapter "The Earlier Olmec Record." Then the planets (Uranus, Neptune, Saturn, Venus, Mars) plus the "seven helpers of the king" add up to 12. It has long been my suspicion that Mercury should probably be added to the "Saturnian planets" to substitute for the globe identified as Venus and called "Sovereign Plumed Serpent" in the *Popol Vuh*.

The *Popol Vuh* identifies the northern planets as five in number during the time of the negotiations between the southern ball plasmoids and the northern planets (all within the period ending in 8347 BC, 2500 years after 10,900 BC), but the *Popol Vuh* seems to misidentify Mercury as Venus -- both were white spheres -- calling Mercury "Sovereign Plumed Serpent." This suggests that Venus only came into existence much later in 4077 BC.

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Note 8 --

See Linda Schele and David Freidel, *A Forest of Kings* (1990). The temple images at Palenque are named as the "Tablet of the Foliated Cross," the "Tablet of the Cross (the World Tree)," and the "Tablet of the Sun (the War Stack)" -- in three separate temples of the same names, of which the "Temple of the Cross" is the central structure.



[Images: Palenque, circa AD 700. "Tablets of the Temple of the Foliated Cross," the "Temple of the Cross," and the "Temple of the Sun." Representing, left to right, Mars, Venus, and Jupiter. After Linda Schele and David Freidel "A Forest of Kings" (1990).]

The tablets above are flanked with figures of the ruler Chan-Bahlum and his (dead) father. Both the accompanying texts and the iconography make it clear that the three panels are dedicated, in order (left to right), to Mars, Venus, and Jupiter. These are the "Palenque Triad" of gods, named GII, GI, and GIII.

The aged God L (GIII) on the left of the third panel above is Jupiter. God GI-prime, who is seen on the right of the panel, is Saturn, the father of GI (Venus). This last panel would seem to represent the lines of electrons connected to the far south as spears, not unlike the North African depiction of Neith of the Arrows. The two older Gods assigned to this would be appropriate, since this predated everything else, 5000 years ago.

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Note 9 --

I have assumed a synchronous rotation Earth and Saturn, which means that in effect Saturn's period was 24 hours, not 10.6 hours which is the period of rotation today. The speeding up of the rotation of Saturn can probably be justified from the loss in orbital rotational momentum due to its later relocation to 9.5 AU.

What would certainly account for the "beating of things with wood and stone" would be a misalignment of the axis of Earth and Saturn, which I have estimated at about 15 degrees. Saturn would be seen as revolving in a circle of about 30 degrees diameter around the center of the Earth's polar axis on a daily basis.

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Note 10 --

Wal Thornhill has suggested that the weak magnetic field of Mercury is probably due to its wildly eccentric orbit. This would also apply to Venus before it circularized.

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Note 11 --

The easily seen satellites of Jupiter number 4. These are in excess of 3000 km in diameter and were noted by Galileo. The next four in size and prominence, ranging from 50 to 200 km in diameter were discovered by the beginning of the 20th century AD. The satellites are listed below in order of distance from Jupiter. There are many more small and odd satellites.

Satellite	Distance (km)	Radius (km)	Mass (kg)	Discoverer	Date	comment
-----	-----	-----	-----	-----	-----	-----
-						
Metis	128,000	20	9.56e16	Synnott	1979	close
in, small						
Adrastea	129,000	10	1.91e16	Jewitt	1979	close
in, small						
Amalthea	181,000	98	7.17e18	Barnard	1892	1
Thebe	222,000	50	7.77e17	Synnott	1979	too la
te						
Io	422,000	1815	8.94e22	Galileo	1610	2
Europa	671,000	1569	4.80e22	Galileo	1610	3
Ganymede	1,070,000	2631	1.48e23	Galileo	1610	4
Callisto	1,883,000	2400	1.08e23	Galileo	1610	5
Himalia	11,480,000	93	9.56e18	Perrine	1904	6
Elara	11,737,000	38	7.77e17	Perrine	1905	7
Lysithea	11,720,000	18	7.77e16	Nicholson	1938	8
Leda	11,094,000	8	5.68e15	Kowal	1974	smalle
st						
Pasiphae	23,500,000	25	1.91e17	Melotte	1908	too fa
r						
Sinope	23,700,000	18	7.77e16	Nicholson	1914	too fa
r						

Carme	22,600,000	20	9.56e16	Nicholson	1938	too far
Ananke	21,200,000	15	3.82e16	Nicholson	1951	too far

It should be suggested that the satellites of Jupiter seen in antiquity consisted only of those relatively close to the planet, large enough to be seen, not at extreme distances. That suggests the numbered satellites listed above. Since Thebe was not discovered until 1979, it might be left off the list. Then "the nine" would consist of 8 numbered satellites plus Jupiter. That follows the same reasoning as for Saturn.

A number of mythological sources (Asia and Africa) claim nine satellites or Gods who accompany Jupiter. This doesn't work out too easily. Maybe Thebe was included. The last four are all at 10,000,000 km or more, and are unlikely to be part of the set.

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Note 12 --

See Linda Schele and David Freidel, *A Forest of Kings* (1990), and *Maya Cosmos* (1993).

The quetzal plumage is a plasma connection between Venus and Saturn. If the connection were in arc mode it would be a display in green or violet, or at any rate brilliantly colored -- like the feathers of the quetzal bird (*Pharomachrus mocinno*). At a later time it would be the green plasma tail of Venus.

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Note 13 --

The two-headed serpent uses Venus as one head and the Sun as the other. This is an image of the plasmoid bolt of Jupiter in July of 685 BC. The vision serpent is distinct from this and might be a representation of the last red ring in the sky, the snake Apep of the Egyptians. Alternately it might represent the polar plasma plume which showed periodically, and ended in a ball form with a feather headdress.

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Note 14 --

Although it is possible that the "nine" of "Bolon Dzacab" refers to the rising of Mars to Saturn, which is specifically noted by the *Chilam Balam*, it is more likely that the "nine" refers to the nine close approaches of Mars in the era of 806 BC to 687 BC.

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Note 15 --

It is just as possible that the contact was much closer to Mesoamerica, for it could be suggested that the north magnetic pole was located at or near Hudson Bay at this time. That would still have the location of the plasma contact be viewed in the northwest direction from England, in the northeast from Mongolia, but seen in the wrong direction from China (although Chinese myth is fuzzy on this). But the plasma connection to Saturn would present itself as directly over the North Pole as seen from Northern Pakistan and India -- and thus without the curvature as seen from other locations.

This view from India might be justified from the extensive use of really giant swings as religious monuments at a number of locations. Any plasma connection in glow mode would look to have well-defined left and right edges. As I have mentioned earlier, the plasma stream may have looked as if there was very little change in the width from its lowest to its highest location.

See, in this regard, Willard Van De Bogart's essay presented at [\[The Giant Swing\]](#). He writes:

"In India the swing has been used for thousands of years with its early beginnings going back to the aboriginal cultures which populated the Indian sub-continent long before the Hindu culture began. The swing has been used in fertility rites, religious rituals and as a symbol for the cosmological understanding of the universe and developed as a way to celebrate the beginnings of the New Year by cultures worldwide."

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Note 16 --

Schele and Freidel, *A Forest of Kings* (1990), endnote 33 to page 246. To repeat a previous endnote: Ballcourt A-IIb at Copan in Honduras was built during the sixth or seventh century AD, and soon remodeled. The remodeling preserved three central alley markers.

A tree is shown on the outside area of the north and south markers. Suspended from each tree is a playing ball. The tree of the north is labeled "Nine Successions"; the tree of the south is labeled "Seven Successions." If, as I suspect, the trees represent the plasma plumes of the north and south, then we have here an inventory of how many times the *axis mundi* reappeared. It would be appropriate to reappear more frequently in the north, since the north magnetic pole would facilitate a larger movement of electrons.

The dates are:

- (1) after 3147 BC (trees mentioned)
- (2) after 2349 BC (trees mentioned)
- (3) after 2193 BC
- (4) after 1492 BC (trees mentioned)
- (5) after 1442 BC
- (6) after 747 BC
- (7) after 686 BC
- (8) after 685 BC

The dates for the return of the directional trees are noted above. The date of 686 BC is not at all certain. The date of 685 BC was added to the list. There was no change in the Earth's orbit in 686 or 685 BC, but the electric field of the Sun changed significantly in 685 BC. I also have the suspicion that there might have been two additional changes in the orbit of Earth between 2349 BC and 2193 BC, which have remained unrecorded. The name "Nine Successions" is one more "succession" than noted in the records at Palenque, where the first northern plasma plume is called "north-eight-house."

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Note 17 --

The choppy transliterations of the dedicatory texts of monuments of the Maya seldom are very clear on purposes, except to prove the exceptional nature of the Long Count calendar. In this case, too, it is unknown why the "raised-up-sky north-eight-house GI" had to be invoked.

In the quoted text, the glyph "GI" is used with other modifiers, and it is uncertain what it would mean. It could be a possessive, "the eight-house of Venus." This would match the first recognition by the Egyptians of Venus flying around the tree of Biblos in the north. It could also read as "raised-up-sky north-

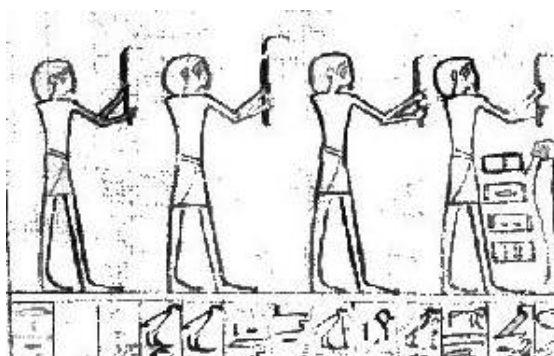
house eight-GI," but GI (Venus) only shows up seven times near Earth, as I will detail in this text, not eight.

Maya representations of Gods as face-glyphs are called God GI, GII, GIII, and God A, B, C, etc., by archaeologists because it has not been easy to identify the faces with well-known and named Gods. But based solely on iconography I can readily associate some of these numbered and alphabetically identified face-glyphs with the planets as follows:

named God	planet
B, GI	Venus
D, GI-prime	Saturn
K, GII	Mars
L, GIII	Jupiter

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Note 18 --



The four flames which surround the cosmos, an illustration from the Egyptian *Book of the Dead*.

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Note 19 --

If Hathor in Egyptian iconography and literature can be identified with electric contacts by Venus, then the occurrence of the "Seven Hathors" (as sculpted, for example, at the Roman Period temple of Denderah in Egypt) might signify a similar recognition of the repeating nature of interferences by Venus.

In Copic "Hathor" is the name for the seven stars of the Pleiades.

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Note 20 --

In the texts at the Maya Temples of the Cross in Palenque (AD 690), the Moon, although born before creation according to the texts (in 3121 BC) and bearing planetary children in 2360 BC, becomes "ruler" ("crowns herself") in 2305 BC. After correction (see below), this date would fall in a Katun 9-Ahau. Saturn is her husband; he is also born before the retrocalculated nominal date of the second creation of 3114 BC. The birth of the Moon can be attributed to seeing Jupiter on a nearby outer orbit before it clashed with the Saturnian system.

The specific seasonal dates used at Palenque are likely selected for their numerological value (so think some archaeologists), although I would think that probably the correct era was used -- that is, the correct Baktun and the correct Katun. The inscriptions were meant to be seen by local Ahobs and visiting dignitaries from other Maya ceremonial centers -- all of whom were literate and acquainted with the written history of the world.

That the three planets were "born" in 2360 BC would suggest that they became visible at this time, that is, as star-like objects, but more importantly it would mean that they were freed from the obscuring Absu into which the ecliptic dipped for half of each year before 2349 BC. This could also suggest that the Absu had clearly disappeared at this time. As I have pointed out in another chapter, the date of 2360 BC is incorrect by 22 years. It should be 2337 BC, which places it after the "flood of Noah" of 2349 BC by 12 years. The "flood of Noah" is the start of the removal of the Absu from the skies.

The "corrections" noted in the text are based on the assumption that the Palenque dates were retrocalculated on the basis of a 365.24-day solar year, whereas the Olmec who instituted the Long Count originally used a 360-day solar year. Thus the retrocalculations place all the calculated Baktuns and Katuns too far into the past by 5.24 days per year since 747 BC.

The crowning of the Moon as Ahau in 2305 BC should be corrected by 22 years to 2283 BC, which, by the way, is close to the date that the Moon "Shun" joins the Chinese emperor (God) Yao (Jupiter) on the throne (2287 BC traditionally, corrected to 2277 BC).

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Note 21 --

But note that in the chapter, "The Day of Kan," I identify Monte Alto in Guatemala, dating to about 2000 BC, as an earlier important ceremonial center. Monte Alto was destroyed or left behind after (what looks like) 520 years of use, to be replaced by San Lorenzo in about 1440 BC.

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Note 22 --

An ephemeris program needs to be set at 2000 BC to show the Pleiades aligned with the intersection of the equatorial and the ecliptic. Except for the horizon and zero degrees longitude lines, this is the condition of the sky in June of 685 BC and anytime earlier. This would not be true after July of 685 BC, when the intersection had moved 15 degrees west along the horizon.

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Note 23 --

The sweet smells are quoted by Velikovsky from the *Papyrus Anastasi*, Ginsberg's *Legends*, and the *Vedas*. It is reminiscent of the smell of the exhaust of diesel engines, thus the burning of hydrocarbons.

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Note 24 --

July 26 is the day after July 25, and therefore is New Year's Day. July 25 represents the overhead passage of the Sun at Edzna in the Eastern Yucatan, as also at Teotihuacan in the Central Valley of Mexico. Both are located at a latitude of 19 degrees and 40 seconds north.

At the time of the Spanish invasion, after AD 1556, July 26th was rotating through the days Kan, Muluc, Ix, and Cauac (using the August 13 correlation), reaching the day of Kan on July 26, 1557 (Gregorian), as Landa reported. But it would not have mattered what Tzolkin day-name fell on July 26th. It was known as "the day of Kan" -- as the day the world was destroyed and recreated.

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Note 25 --

I attempted to apply any number of corrective measures to the calendar calculations, but only the substitution of 365.24 days for the 360 days, as assumed both by us and by the Classical Era Maya for the period prior to 747 BC, yielded results. Thus the scribal "error correction" for the day of Kan was accomplished well after 685 BC.

In researching the "day of Kan" over a span of 5000 years I became aware of how relatively easy it was to access the Long Count for particular combinations of the Tzolkin and Haab.

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Note 26 --

We should be able to check locations of Mars and Mercury with an ephemeris program; however, fully accurate results cannot be expected, for even though the Earth's orbit was determined by 747 BC, the orbit of Mercury changed in 686 BC. The location of the planet Mercury for the date of March 23, -686, the second Earth shock, is "off" by some days, as I show in Appendix B, "The Celestial Mechanics." Since this is likely to have been the last alteration of the orbit of Mercury, it can be expected to be close to today's values in that instance only -- which represents the starting position (in fact, the aphelion) of the current orbit.

Earlier positions cannot be found for the simultaneous appearance of Mars and Mercury. This is to be expected for an ephemeris based on the current tight orbit of Mercury. It is amazing, yet expected, that a point of coincidence was found with the orbit of Earth in 686 BC. If the earlier orbit of Mercury was simply an elongated version of today's orbit, that is, the same orbit with extreme eccentricity, then the orbital period would be the same, although the location of the planet at any point in time along its orbit would vary considerably.

Certainly both Mars and Mercury would appear together in the skies on occasion, since Mercury (today) has a fairly short orbital period, and even Mars would pass Earth approximately every two years. An inspection of the series of the Julian (ephemeris) years 748, 733, 718, 703, and 688 BC, shows Mercury near the sky location of Mars in four out of five years in March or February. It does not happen in 688 BC but happens two years later. (The series was developed by repeatedly subtracting 15 years from astronomical year -747.)

I am adding this note only to demonstrate that the condition of the simultaneous appearance of Mars and Mercury is very possible. In all these cases an

ephemeris program will show Mars outside the orbit of Earth and both Mars and Earth in line with the Sun.

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Note 27 --

Schele and Freidel (in *A Forest of Kings*) are of the opinion that the accumulation of wealth, resulting from harvest surpluses and wider trading, which had come into effect after 300 BC (although earlier dates could very well be suggested), constituted an unprecedented crisis among the Maya, whose social interactions were based on egalitarianism. They write of "a culture which regarded the accumulation of wealth as an aberration," and note:

"We know that the problem the Maya were trying to resolve was one of social inequality because that is precisely the state of affairs that the institution of ahau defines as legitimate, necessary, and intrinsic to the order of the cosmos."

Acceptance of this social sinkhole for wealth did not keep Maya scribes from complaining incessantly, as we see in the *Chilam Balam* texts, both in this Book and elsewhere.

The surpluses of maize, by the way, are astounding. Typically, in well-watered territory, only one-third of the corn crop is needed to feed the family of the farmer year round -- a family which could easily consist of 10 people. That means 20 people could be fed for a year from the remaining crop.

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Note 28 --

If we assume that the "lineage of the noble chiefs" and those whose "faces had been trampled on the ground" represent the orthodox upholders of the relationship between the Maya and the cosmos, then the "unrestrained upstarts of the day and of the Katun," who had inflicted the overthrow of the orthodox nobility, most likely represent a second wave of religious philosophy entering the Yucatan from the west.

The archaeological record of the Classical Era shows the arrival of emissaries from Teotihuacan (in Mexico) some time before AD 700. They bring the flayed human face shield and the dart thrower, which were in general use in the Valley of Mexico at that time. The Maya adopted these to some degree, but it is more

likely that they adopted aspects of the religious philosophy and practices of the westerners.

Of course the Maya had already adopted both the temple mound and the script and time keeping of the Olmecs by circa 100 BC (and possibly much earlier). And the later invasion by the Itza, after AD 900, certainly brought with them a religion of hope for the return of Quetzalcoatl which differed from the concept about Venus which the Classical Maya had already established.

In the main text I have postulated the changes in attitudes toward the older Gods in China, India, and the Middle East after 600 BC, which spread in waves of new religions. I have suggested that the same would have happened in Mesoamerica, and would propose that the first and primary epicenter was Olmec Veracruz.

It could therefore be suggested that, as elsewhere in the world, a number of different solutions came forward. We certainly see this in Central Mexico in the period after 600 BC, with new interpretations of the control of the Gods established at intervals through to the time of the Aztecs.

We have no clear idea from the text of the *Chilam Balam* of when new philosophies were introduced which would have caused the overthrow of the older nobility, although the Itza are repeatedly blamed for "introducing idolatry" to the Yucatan, possibly to cast blame away from the indigenous Maya. But what is interesting is that this is referenced to the events Katun 3-Ahau -- in 685 BC. Since Katun 3-Ahau would repeat, any number of other incidents could be tied to this. This history certainly holds Katun 3-Ahau as significant.

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Note 29 --

The following lists every one of the ending years of Katun 9-Ahau, 7-Ahau, 5-Ahau, and 3-Ahau. I have listed the years as "BC" rather than in their astronomical nomenclature. The Katuns all start 20 years earlier. Where I skip a range of Katuns, I have placed a series of dots.

The corrections listed on the right of some lines are based on the assumption that the Olmecs had listings of Baktuns and Katuns available which reflected solar years, so that a Baktun would be 400 years, and a Katun would be 20 such years, without regard to the actual length of the year. Thus the corrections below are based on subtracting 6 Baktuns (2400 years) from 747 BC to arrive at 3147

as the year of the end of the "Era of the Gods." The correction is thus **3147 - 400**
*** Baktuns - 20 * Katuns.** The corrected years are shown as "sb" -- "should be."

Before 3114 BC (0.0.0.0.0) sb: 3147 BC
 Oxlahun-ti-ku (Saturn) is blindfolded.
 Bolon-ti-ku (Jupiter) attacks Saturn.
 Nine-Lives (Mars) rises 9 times.
 Katun 11-Ahau ends in 3055 BC (0.3.0.0.0)

 Katun 9-Ahau ends in 3033 BC (0.4.0.0.0) sb: 3087-3067
 Ten-Sky (Mars) arrives.
 Katun 7-Ahau ends in 3015 BC (0.5.0.0.0)
 Katun 5-Ahau ends in 2996 BC (0.6.0.0.0)
 Katun 3-Ahau ends in 2975 BC (0.7.0.0.0)

 Katun 9-Ahau ends in 2779 BC (0.17.0.0.0)
 Katun 7-Ahau ends in 2759 BC (0.18.0.0.0)
 Katun 5-Ahau ends in 2739 BC (0.19.0.0.0)
 Katun 3-Ahau ends in 2720 BC (1.0.0.0.0)

 -- The Third Creation --
 Katun 9-Ahau ends in 2523 BC (1.10.0.0.0) sb: 2567-2547
 Jupiter clears the asteroid belt and develops a coma and tail
 Katun 7-Ahau ends in 2503 BC (1.11.0.0.0)
 Katun 5-Ahau ends in 2483 BC (1.12.0.0.0)
 Katun 3-Ahau ends in 2463 BC (1.13.0.0.0) sb: 2507-2487
 Jupiter loses its tail for 20 years.

 Katun 4-Ahau ends in 2345 BC (1.19.0.0.0) sb: 2387-2367
 Katun 2-Ahau ends in 2325 BC (2.0.0.0.0) sb: 2367-2347 ///
 Fall of the Absu (misplaced below).
 (no Katun listed:) Jupiter develops a coma again.
 Katun 13-Ahau ends in 2305 BC (2.1.0.0.0) sb: 2347-2327
 (no exact Katun:) Moon appears.
 (Palenque) Moon first appears, 2336.8 BC
 Katun 11-Ahau ends in 2286 BC (2.2.0.0.0) sb: 2327-2307
 Katun 9-Ahau ends in 2266 BC (2.3.0.0.0) sb: 2307-2287
 (Palenque:) Moon "lets blood," 2302.3 BC
 (Annals of Shu) Moon birth 2301 BC
 Fall of the Absu (misplaced event).
 Katun 7-Ahau ends in 2246 BC (2.4.0.0.0) sb: 2287-2267

(Palenque:) Moon "crowns herself," 2282.6 BC
(Annals of Shu) Moon employed 2288 BC

Katun 5-Ahau ends in 2226 BC (2.5.0.0.0) sb: 2267-2247
Katun 3-Ahau ends in 2206 BC (2.6.0.0.0)
.....

Katun 8-Ahau ends in 2128 BC (2.10.0.0.0) sb: 2167-2147
Yao dies 2150 BC
Gudea, brightness of Ningursu, ca 2150 BC
Shu, celestial event" of 2155 BC
Death of Abraham at 199, 2150 BC
Jupiter in flames -- "fire on high"

Katun 6-Ahau ends in 2108 BC (2.11.0.0.0) sb: 2147-2127
Katun 4-Ahau ends in 2089 BC (2.12.0.0.0) sb: 2127-2107
Katun 2-Ahau ends in 2069 BC (2.13.0.0.0) sb: 2107-2087
Katun 13-Ahau ends in 2050 BC (2.14.0.0.0) sb: 2087-2067
Katun 11-Ahau ends in 2030 BC (2.15.0.0.0) sb: 2067-2047
Rockenbach, Tower of Babel, 2060 BC

Katun 9-Ahau ends in 2010 BC (2.16.0.0.0) sb: 2047-2027
Katun 7-Ahau ends in 1990 BC (2.17.0.0.0) sb: 2027-2007
Katun 5-Ahau ends in 1971 BC (2.18.0.0.0)
Katun 3-Ahau ends in 1951 BC (2.19.0.0.0)
.....

Katun 9-Ahau ends in 1754 BC (3.9.0.0.0)
Katun 7-Ahau ends in 1734 BC (3.10.0.0.0)
Katun 5-Ahau ends in 1714 BC (3.11.0.0.0)
Katun 3-Ahau ends in 1695 BC (3.12.0.0.0)
.....

Katun 9-Ahau ends in 1497 BC (4.2.0.0.0) sb: 1527-1507
Katun 7-Ahau ends in 1478 BC (4.3.0.0.0) sb: 1507-1487
Ah Uuc Chek Nal (Venus) rubs the Earth.

Katun 5-Ahau ends in 1458 BC (4.4.0.0.0)
Katun 3-Ahau ends in 1438 BC (4.5.0.0.0)
.....

Katun 9-Ahau ends in 1241 BC (4.15.0.0.0)
Katun 7-Ahau ends in 1221 BC (4.16.0.0.0)
Katun 5-Ahau ends in 1202 BC (4.17.0.0.0)
Katun 3-Ahau ends in 1182 BC (4.18.0.0.0)
.....

Katun 9-Ahau ends in 985 BC (5.8.0.0.0)
Katun 7-Ahau ends in 965 BC (5.9.0.0.0)
Katun 5-Ahau ends in 945 BC (5.10.0.0.0)
Katun 3-Ahau ends in 926 BC (5.11.0.0.0)
.....

Katun 11-Ahau ends in 747 BC (6.0.0.0.0) actual
Mars contacts Earth; (start of Long Count).
Katun 9-Ahau ends in 729 BC (6.1.0.0.0) actual
Further sightings of Mars.

Katun 7-Ahau ends in 708 BC (6.2.0.0.0)
Katun 5-Ahau ends in 688 BC (6.3.0.0.0)

Katun 3-Ahau ends in 668 BC (6.4.0.0.0)
Venus nova, Kukulcan disappears.

actual

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Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.017+ and deg=57.2+; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Chapter 31: The Olmec Record of the Past.

\$Revision: 42.5 \$ (rec.php)

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This chapter will turn out to be dense, obtuse, boring, and unbelievable since we will be dealing with records dating back to 41,000 years ago. I would not make this statement, if I had not seen verification of this against the record of residual Carbon-14 dating back 50,000 years (which was noted in the chapter "Event of the Younger Dryas"), where the Carbon-14 information is from original data by A.H.L. Voelker, et alii, in 1998.

What the earlier chapter, initially written after this chapter, describes is the following:

In the Maya *Chilam Balam* there is a record of seven sightings of "stones" representing God the Father who was attempting to come into existence. The stones are apparently the Saturnian stack of planets. Enormous spans of time are indicated between approaches of these stones, although more likely "approaches" should be understood as the time of the leave-takings.

In the chapter "The Olmec Record of the Past" [this chapter], written long before the chapter "Event of the Younger Dryas", I had initially suggested that the *Chilam Balam* record might go back 30,000 or 40,000 years. I would now suggest that this record starts in 41,000 BC. At that time

Australia and Southeast Asia were assaulted with an electrical contact from Saturn. The megafauna of Australia and Southeast Asia went extinct.

If this information could be correlated to glaciation and Ice Age temperatures over the last 50,000 years, it might suggest that Earth was captured and released by Saturn seven times before the last event (the Younger Dryas). The temporary capture meets the conditions suggested by Tom Van Flandern, and also follows his suggestion that such capture could be temporary -- although measured in thousands of years.

This history is recorded in Book 11 of the *Chilam Balam*, which has to be the most arcane and twisted narrative of the whole of the *Chilam Balam*. It took me over six months to get through the text, line by line, spending an hour a day inquiring into meaning, comparing translations, and associating it to a sequence of known events. Two years after that I was still adding notes from Richard Luxton's *The Book of Chumayel* (1996). A copy of Book 11 is available [\[here\]](#).

But before I was done, I realized that I was looking at records dating back some 30,000 or 40,000 years. Of course it is astounding to suggest that a Mesoamerican tribe, still living in the "Stone Age" in AD 1500, had records dating back to long before those of any other people on Earth. I'll detail the reasoning behind my conviction for this further below. When, however, we see the details of site alignments in Veracruz and the Valley of Mexico since 1400 BC, the suggestion of the existence of such extensive records gains credence as but another aspect of the intellectual abilities of these people.

What is being described in these pages of the *Chilam Balam*? Let me again emphasize that we are reading texts which are interpretations of what was seen depicted in ancient bark-book codexes. The readings were made by people who had absolutely no idea what most of the depictions and the later added glyphic texts were about. Their only concern was the faithful transmission of sacred history. Today we know more than they did. We can trace events and describe phenomena which remained a total enigma to the readers of the bark-books in the 16th century AD, and probably most others who had looked at these ancient records over the previous 10,000 or 20,000 years.

Introduction

There are three tasks ahead, and three documents:

(1) I will start with an attempt to "read" Book 11 of the *Chilam Balam* in terms of the chronology of celestial events which I had already established on the basis of information from the European Upper Paleolithic between 31,000 BC and about 10,000 BC, plus the implications of what was seen in the skies, based on the changes in figurines to 4077 BC.

(2) Then follows a single page titled (by me), "A Survey of the World," which describes events after 10,900 BC. This is also the opening page to the *Chilam Balam*. Part of this was described in the chapter "The Peratt Column and the First Gods."

(3) An additional single page, "The Third Creation" of 2349 BC (an event which is also presented in Book 10), will be addressed last.

The books of the *Chilam Balam* were kept from the eyes of the Christian priests, were recited at town meetings, and recopied for some 300 years. As public documents, these had to retain their accuracy, even if the writers did not understand what any of the descriptions portrayed. It was history, very old history, and very certain history, which reached back thousands of years before any history brought by the Spanish invaders. The books described past events in graphics, and were thus indisputable as a record of what had been seen. Moreover, the books not only told of the past, but predicted the future. The coming of the Spanish had been known long before they arrived.

I suspect that the Books had circulated in graphic form among many tribes before any text was added after about 600 BC (and perhaps at Monte Alban). That would certainly explain some notable differences in interpretation of events of the remote past, which show up both in the *Chilam Balam* and in the *Popol Vuh*. There were thus likely many versions of the original codexes, many distinct derivations of the memories of diverse tribes, although the histories of the remote past are generally cohesive to the sequence of events I have established so far in the text of these pages. The differences in interpretation, which is a difference in "readings" performed in antiquity, show up because Books 10, 11, and the other two loose pages repeat some of the same events.

(1) BEFORE CREATION

In Book 11 of the *Chilam Balam*, titled by Roys as "The Ritual of the Angels" and by Bolio as "Book of the Spirits," there is recorded a sequence of events which nominally concerns the birth of the Christian God, the Trinity, and the

angels. It looks to be in correct order of events, if by "events" we mean what was seen in the skies of Earth during the period before about 10,900 BC, and probably as early as 41,000 BC. This was rather astounding to me, but this section parallels the sequence of images which I had assembled earlier in the chapter "Saturn and Archaeology" on the basis of archaeological information, and augmented with information on the peaks in Carbon-14 fractional differences (from the current measures) in Iceland marine sediment and the details of the Peratt column of 10,900 BC to 4077 BC.

The "Ritual of the Angels" is heavily Christianized. We meet God the Father, the Trinity, and other beings who are part of a Christian theology, but they are conformed to the facts of history as the Maya had recorded them. Thus instead of God the Father existing from all time before the beginning of creation, he calls himself into being -- creates himself -- well after the beginning of time, and officiates over the creation of the world. Most of this, not unfamiliar from mythology worldwide, can parallel Christian theology, but there are some remarkable differences, which would have irked Catholic theologians of the 16th century AD. Before he comes into existence, for example, God the Father resides in a stone.

What is also constantly repeated is the notion that most of the events described in Book 11 happen when "there was neither heaven nor earth." It is a notion expressed by the creation myths of many other people, that creation happened when Saturn started to blaze and the Gods and their land showed up.

There was a considerable congruence between Maya or Mesoamerican concepts of spirituality, grace, and heaven and hell and those of Christianity, so that the Maya and Aztecs easily adopted the Catholic saints and feast days, for example. It is important to realize that the Maya (and probably the other people of Mesoamerica) considered the maize plant to be a free gift of the Gods. And it is. Maize is the most productive and easily managed grain in the world. There was a congruence with the Christian concept of grace, as a free gift. Newly sprouting maize plants were called "gracia."

However, the concept of "heaven" as an imagined space might have been elusive, unless that space was delineated with specific objects. Edward T. Hall, in *The Hidden Dimension* (1966), has pointed out for the Hopi, "[they] cannot, as we think of it, 'imagine' a place such as the missionary's heaven or hell." As for American Indians of the Southwest, so for the Maya, who shared a similar language base.

What we see in "The Ritual of the Angels" is an attempt to bring a new Christian theology, which had no basis in concrete objects, into congruence with the known pre-history of the Maya. The objects in the sky, the sacred stones, sketched in the oldest books of Mesoamerica, were an historical record based on observations, and thus real. The birth of the Christian God could perhaps be deduced from the Maya's history of the deep past. This is what Book 11 attempts to do.

An Outline

In terms of a history of celestial events dating back tens of thousands of years, it is perhaps not unexpected that the *Popol Vuh* covers elements from the same period, but in a popularized narrative form, and frequently out of order. I'll discuss the *Popol Vuh* later, but I should make note of the fact that three-quarters of the narrative of the *Popol Vuh* is spent discussing the same extremely long time period.

Modern translators are hampered by the fact that they do not understand a single word of the text in terms of a meaningful context. Who would have guessed that the Maya scribe was relating events as seen and understood 7000 and 40,000 years ago? Even the original Maya copyist would have had problems interpreting the graphics before him. This is clearly seen in the wide variety of imagery with which these events are retold, in this Book 11, in Book 10, in the two loose pages, the Palenque engravings, and in the *Popol Vuh*. Allowing for such diverse readings, the events can still be recognized. There is a remarkable consistency in the sequencing.

In terms of what was already known before I started to look at Book 11 of the *Chilam Balam*, the following list could be made and compared with this text:

- (A) The cup and tail marks before 30,000 years ago.
- (B) The classical Venus Figurines after 28,000 years ago.
- (C) The Younger Dryas, 10,900 to circa 9500 BC.
- (D) The chaos of Saturn after 9000 BC.
- (E) The Peratt column of 10,900 to 4077 BC.
- (F) The Peratt column instabilities.
- (G) The nova event of Saturn of 4077 BC.
- (H) Creation of the rings.
- (I) The assembly of God's heaven.

- (J) The recognition of Mars below Saturn.
- (K) The plasma dome at the north horizon.
- (L) The lowering of Mars to Earth.
- (M) The end of the first creation.

It is this list which is maintained in Book 11 without interruption to furnish a narrative sequence. Let me give a short synopsis of each of these events, as follows, before jumping into a longer textual analysis.

(A) The cup and tail marks, before 30,000 years ago.

As far as we can tell, before the European Gravettian period of the Upper Paleolithic, and thus before about 28,000 years ago, we see the ubiquitous cup and tail marking inscribed on rocks and cave walls worldwide. The best dating suggests that these marks start about 40,000 years ago, and appear again 20,000 years later. These are gross estimates of time; there is no finer detail. [\[note 1\]](#)

Book 11 identifies these marks as the "three-cornered precious stone of grace" -- a metaphor for a maize kernel -- a term probably applied interpretively thousands of years later. Some seven separate appearances are noted, each appearance happening "when there was infinite night, when there was no God." The "infinite night" might also have been retroactively applied. A period of 1500 years of considerable shadow was experienced in the Younger Dryas, and might have been applied to the graphical record of the appearances of the "three-cornered stones" because probably nothing else was recorded at the same time. Bolio, by the way, notes these stones to be on fire, as "flames." That would both explain the reason to record these incidents as well as the shape of a line extending from a lozenge or oval.

The description seems to suggest that there was no daylight, but daylight would not have been a likely part of the record. The graphic record was of two planets in arc mode plasma connection -- probably seen at night. The implication of endless night without daylight, however, fits the overall theme of the narrative, which is the establishment of day and night (and heaven and Earth) at the start of creation.

(B) The classical Venus Figurines, after 28,000 years ago.

The classical Venus Figurines appear in Europe in the Gravettian period of 28,000 to 24,000 years before the present. Of note is the fact that figurines are not recognized by the Olmecs (or have remained unrecognized by us), although

female figurines occur among other Central American tribes, as late as 2400 BC. The Olmecs saw stones. In their words, these were sacred stones. In this case, and as distinct from descriptions from later paragraphs, the stones are seen as "three generations suddenly augmented in stature" -- which likely represented Uranus, Neptune, and Saturn (with possibly Mars, below). (This could also be interpreted as the three southern ball plasmoids.)

Bolio has a considerably different reading, including "... he of one Age alone, the Very Tall," which seems to skip directly into the elongated figurines of the European Magdalenian period (17,000 to 14,000 years ago). In Europe the figurines disappear for some 7,000 to 10,000 years between the earlier Gravettian and the Magdalenian. This may be the result of an abandonment of Western Europe during a period of increased glaciation, although caves (in Spain and Southern France) continued to be decorated throughout this period as far as I can tell from tabulations I have made.

(C) The darkness of the Younger Dryas, after 10,900 BC.

The shadow of the Younger Dryas, from 10,900 to circa 9500 BC, is mentioned three times, in passing, during the description of (what I assume is) the Saturnian stack of planets. It is even named as "Nilu," which Roys suggests is a reference to the plague of darkness at the time of Exodus. The *Popol Vuh* describes this period extensively, not only the darkness ("before creation") but also the cold and freezing rains. The text of Book 11 does not. Much more text is spent describing the seven pointed stones since 40,000 years ago.

(D) The chaos of Saturn, after 9000 BC.

It is uncertain when the obscuring clouds appeared, or how long they lasted. Other mythologies simply have the clouds of chaos appear after the darkness. Book 11 does not neglect the mention of obscuring clouds, called "winds," by naming six winds in a single paragraph. With this the form in the sky was obscured, "he covered the name of the holy heaven."

The Earth at this time was dropping down further below Saturn and was being drawn toward the rotational axis of Saturn, to eventually be relocated to below Saturn's south geographic pole -- a process which would take several thousand years. The chaos, the swirling clouds, was the enclosing coma of Saturn. In dropping below Saturn, the Earth entered into this glow mode plasma coma of Saturn.

(E) The Peratt column, between 10,900 to 4077 BC.

Hardly to be missed, the "beast" (opossum, "white beast") and its tail are mentioned, as well as the establishment of three stones below the feet (or in the "dust" of) the "One Stone." This suggests that Saturn was seen in the north, or at least the terminal location of the tube of plasma could be located, probably as a circular pattern. The Olmecs knew what that was. They had records.

(F) The Peratt column instabilities.

In the following paragraphs something is happening in the skies, but the only recognizable figure is a "giant" who appears. The plasmoid of the Peratt Column was interpreted as the body and face of a giant in the skies in Australia and additionally in Mesopotamia (as Oannes) and at Lepenski Vir in Serbia (as a woman). This could be this giant, but as likely it is the "squatting man" instability of the Peratt column also mentioned in the Norse *Elder Edda* as existing in the south.

(G) The nova event of Saturn, 4077 BC.

Suddenly we have notice of a fire in the heavens, and as emanating from a single object, "This was one grace, one stone; then fire was created." This is not some legendary discovery of fire by humans, this is a fire in the sky, as suggested by the phrasing, "... the light from that which lighted the heaven" and "... after the light originated in the heavens." This is the most recent nova event of Saturn.

(H) The creation of the rings.

As part of the nova change of Saturn, a bundle of plasma in arc mode was established to Mars via Mercury, noted as the "creation of the star" (at Mercury), and the rings would have shown up. The rings are here separately listed by color, following, of course, the colors of the later directional trees, but directions are not mentioned.

There is no indication of how long the arc mode contact with Mercury and Mars (and Earth) lasted, and no mention of this process ever repeating. From the creation of henges in Northwestern Europe, it would seem that arc mode plasma contacts were repeated periodically, although it is difficult to know anything of this for certain. The next set of sentences identifies a plasma stream in glow mode.

(I) The assembly of God's heaven.

The next sentence describes Saturn as a God, like Oxlahun-ti-ku, or like the pharaoh as Horus of the Narmer Palette -- *"grasping in his hand his stone, grasping his 'cangel' [dragon], grasping his wheel on which are hung the four angels of the winds."*

There is no question that this represents the image in the north skies shortly after 4077 BC, but there is nothing Christian about this. It is the original chief God of the Olmecs and Maya.

I am skipping (J) and (K) the details of which are listed below.

(L) The lowering of Mars to Earth.

This recounts the lowering of Mars to Earth. In effect this creates the world. The plasma dome (or dome of water vapor) in the northeast (or north) is described as a mountain or a monument base. "Holes" are bored in the mountain, suggesting that, from the latitude of Guatemala, Mars would have been seen as disappearing behind the "mountain" -- "occluded" might be better description. The holes in the mountain presumably are the fluted areas, hinted at earlier. These are also the "caves" from which humanity sprang in other Mesoamerican and South American creation myths.

(M) The end of the first creation.

This "first creation" ends in the disappearance (being "bitten") of the Sun. The author places this in Katun 13-Ahau, as a way of emphasizing the predictive value of this Katun. In fact, the text segues directly to a description of the forced Christianization in the 16th century AD. To underscore this understanding, the text ends -- in a different hand -- with the date of AD 1539, and signed "Chilam Balam, the prophet."

Following is a more descriptive exposition of the text, by distinct familiar topics.

The "three-cornered stone"

The following is the translation by Roys. It is labeled as Book 11, "The Ritual of the Angels," and is as obtuse and opaque to interpretation as Book 10.

"'Dominus vobiscum' ended the words of their song when there was neither heaven nor earth."

*"When the world was submerged, when there was neither heaven nor earth, the **three-cornered precious stone of grace** was born, after the divinity of the ruler was created (declared), when there was no heaven."*

*"Then there were born **seven Tuns, seven Katuns**, hanging in the heart of the wind [in the heart of the spirit], the **seven chosen ones**."*

Bolio has "seven chosen flames" for "seven chosen ones." Roys interprets "tun" as a holy stone, and "three-cornered precious stone" as symbolic of the maize kernel, writing:

"Maya 'tun': This usually means a precious stone, while an ordinary stone or rock is called Tunich. 'Tun' also means the pit of a fruit as well as the soft surface limestone of the country. In compound words designating things made of stone we find the same term employed; furthermore 'tun' is the name of the Maya time-period of 365 days." [He means 360 days.]

"It is important to the interpretation of this text to note that among the Maya the Spanish word 'gracia', here literally translated as 'grace', is a ritualistic term employed to designate the young maize plant. Consequently the 'three-cornered precious stone of grace' is doubtless also a liturgical term indicating a grain of corn [maize]."

It is interesting that at first "the world" was "submerged" -- but at a time before heaven and earth. The "earth" and "the world" apparently are different. It suggests, as the *Popol Vuh* does also, that there was only some undefined substance before creation. The phrase "the heart of the wind" is reminiscent of the titles "Heart of Sky, Heart of Land" and "Heart of Sea, Heart of Lake" of the two sets of Gods of the *Popol Vuh* or their location. Since these were the sky above the far south horizon, seen above the land, and the "lake" above the far north horizon, seen above the sea, it suggests that the "heart of wind" is the center of vapors, clouds, or sky -- assuming that "heart" denotes "center," or, more likely, a central site of an activity. As I have pointed out earlier (in the chapter "The Peratt Column"), these two sets of objects rotated into view from below the horizon (both the south and the north) on a daily basis. But all of that was much later in time.

I would assume that the "three-cornered precious stone" that we are dealing with here is some object seen in the skies and on the basis of what develops later I would suggest that most likely it would be traveling on the ecliptic. It could, however, have appeared anywhere in the sky.

What the seven "tuns" or "Katuns" really are, is not clear. From Bolio's suggested translation as "seven chosen flames" it might be that these describe the cup and tail form of Saturn in arc mode plasma contact to Mars, as I have suggested earlier (in the chapter "Saturn and Archaeology"). More on this below.

I should also note that the number "7" had no particular mystical meaning in Mesoamerica, although it is a significant number in Christianity (representing, among other things, the 7 planets of antiquity, and, of course, the six or seven days of creation). Luxton suggests that these 7 instances of stones represent the seven days of creation of the Bible. Luxton tends to metaphorical and poetic explanations. But there is no narrative of a piecemeal creation, as we see in the Bible, and creation in the Bible took only six days. I might suggest the exact opposite, that the Bible is based on these seven recalled events, instead.

If the scribe were making things up, the number "13" would have been used instead. Adding God the Father to the historic record (as is done further below) is also only a matter of reinterpreting historic evidence. It does not involve inventing something new. [\[note 2\]](#)

The sightings of the "seven stones" seem to span a limited period of years. Each sighting probably lasted only a brief period, perhaps a few hundred years, with long stretches of time between appearances of the stones. The span of time is set out at the opening paragraph, *"Then there were born seven Tuns, seven Katuns..."* A "tun" is a stone and also a year. A "Katun" is 20 years. This would make it look as if the "seven stones" were seen over a period of Katuns each, but unlikely longer than a single 20 year period.

The following text of Book 11 will point that up, when both the stones and the nights are called "infinite." I will suggest that the scribes are using "infinite stone" for "Baktun" periods (which is how "Baktun" is defined: a measure of 400 years). The Katun and Baktun were the standard time-keeping measures among the Maya (and earlier Olmecs), in the same manner that we use decades and centuries to point to events of the past.

The first hint that here we are dealing with a much deeper history was the apparent references to the cup and tail marks. We have to keep in mind that the

cup and tail marks were carved worldwide in profusion since remote antiquity. The sight of the flaming planets must have been absolutely spectacular to the humans observing them. Together with this text of Book 11, it suggests repeated appearances of Saturn with long periods in between.

I am here equating the periodic appearances of this stone to the movement of the object on a cometary orbit, except that there does not seem to be any regularity in its repeated returns. I believe this object is Saturn, traveling with at least Mars below its south pole.

Book 11 of the *Chilam Balam* continues:

"Then, they say, their seven graces stirred also. Seven also were their holy images. While they were still untarnished, occurred the birth of the first precious stone of grace, the first infinite (innumerable) grace, when there was infinite night, when there was no God. Not yet had he received his Godhead."

There is no question where we are in time -- it is before the birth of God. This fact will be repeated a total of seven times in the following text. The Maya were so convinced of the validity of their illustrated history books, that they attempted to fit the Christian God into their narrative history on their terms.

"Then he remained alone within the grace, within the night, when there was neither heaven nor earth. Then he departed (buki) at the end of the Katun, as he could not be born in the first Katun. There were his long locks of hair, 'adeu ti paramit'; his divinity came to him when he departed."

I have the suspicion that "his divinity" might be the development of an arc mode plasma expulsion at the surface of the Mars. Saturn would have entered the Solar System with a coma surrounding the stack of planets. This is the behavior of a comet. Which should be expected. Only on getting closer to the Sun would the arc to Mars have developed. Mercury was not part of the stack at this time yet, so the arc connected directly to Mars.

As I have noted elsewhere, the image of Saturn, even as a comet, and at the time of the European Gravettian period, was in the shape of a woman -- the Fat Lady. It did not have a bow shock or a tail. All the looks of the figurines are of a closely fitting coma in glow mode -- where "closely fitting" still involved distances of up to an estimated 2 million miles (3 million km).

Saturn came from outside the Solar System, positively charged, for it was a star. From this it would seem obvious that Saturn on these infrequent incursions into the inner reaches of the Solar System would not form a giant coma like what would be expected for an ordinary comet, or a tail 100 million miles (160 million km) long, as we see today. A comet needs to get rid of electrons. If Saturn had had a cometary tail it would have been seen when Saturn was in the eastern or western sky. But a tail is never depicted among the million on millions of Venus Figurines of antiquity. This is easily explained by the fact that Saturn, along with its companion planets, was at a much higher positive charge level, having originated outside the Solar system. Saturn was faced with the need to scavenge for electrons to reduce its positive electric potential.

These incursions into the inner reaches of the Solar System were as infrequent as 4000 years apart. Only during a short period of this would Saturn been seen to approach, perhaps a hundred years. This was no ordinary comet which would show only for some months. This was an object that approached for decades, and on getting closer would light on fire to something below the main object. Then it departed again into total obscurity -- getting smaller year by year. [\[note 3\]](#)

I am suggesting, therefore, that, during the middle portion of the journey of Saturn through the Solar System (which would include leaving), it would suddenly switch to arc mode. This is the suggested solution of the phrasing "his divinity came to him when he departed." It would seem strange that the beings of the stones only became god-like when they left unless something suggested this, keeping in mind also the particular grammar which recognizes only ongoing and completed action. For Saturn to go into arc mode is the obvious solution, for a closer approach to the Sun would require a greater adjustment in electric potential, as also happens with comets. The other seven stones (appearances), except for some textual abbreviation by the transcriber, offer the same solution of "and he obtained his divinity when he left," or words like that.

About "adeu ti paramii" Roys notes this book is filled with Spanish and Latin words heard in the Christian church service. He also writes, "Here 'buki' is translated as though it were 'luki', he departed. 'Buki' means to be beaten up." Roys further suggests that, "the 'long locks of hair' are probably a reference to the corn-silk," except, of course, that these appearances happen some 30,000 years before the introduction of maize.

I disagree with the corn-silk reading of the "long hair." I would suspect that this might be a reference to Uranus, seen above Saturn. This was seen, noted once,

and not repeated for the other appearances.

"Departed" is probably appropriate (as "luki"), for the same happens to all the following "precious stones." At first I thought that the seven stones might be describing constituent parts of the stack of Saturnian planets, but these add up to five (at best, and later), not seven.

There are seven stones, each of which appear in the "infinite night," wake up, and then disappear again into the "infinite night" having "obtained their godhead" before leaving. I think that the "infinite night" is an element displaced into the much more remote past from the era of 10,900 to 9000 BC when the Earth was in shadow (although a similar condition could have been experienced at 41,000 bp). It might be suggested to later readers of the original codexes that the fifteen hundred years of darkness between 10,900 and 9000 BC certainly must have pertained from the very beginnings of creation, especially since there was a later well-known lighting up -- a creation event. In suggesting this I am in violation of my supposition that the authenticity of these documents was carefully guarded as we see with myths worldwide. But in this case I think the records span some 40,000 years. It may be that text was added only after about 600 BC. At that point in time the original context of the events would have been hopelessly lost.

Earlier I suggested that these repeated visitations of the stones were probably the seven instances when the Carbon-14 differential rose to a peak -- between 41,000 bp and 13,000 bp. I will stand by that supposition, especially once I realized the coincidence in time between a long disappearance of the Venus Figurines and a very long interval between two of the Carbon-14 peaks.

These visits of Saturn were long lasting, they certainly were spectacular, and were the only thing of interest during generations-long periods. The fact that the last stone, the 8th, actually woke up and caused additional phenomena was reason to keep a record of the previous attempts. [\[note 4\]](#)

At any rate, I think what we are looking at here are events long before what is known as "the first creation" starting in 10,900 BC. The "three-cornered stone" is likely to represent Saturn in remote antiquity, in arc mode with the sharp third corner (Mars) pointing down, in the form elsewhere depicted as the "cup and tail" form. This would be before the first cultivation of maize, or at least before a time, 8000 BC, when maize cobs were no larger than an inch in length. But by the end of Book 11 the "three-cornered stone" will be equated with maize (at least, in Roys's reading of the text).

The "three-cornered stone" thus becomes one of a number of datapoints which could be used to produce a chronology for Book 11. But the "cup and tail" form is poorly dated throughout the world. The "cup and tail" form, as I have indicated earlier, is an indication that Earth was located too far from the Saturnian planets to make a sensible distinction of the individual elements, but that Mars was located close below Saturn and being etched by a continuous electrical arc. I have earlier placed this event at 40,000 to 30,000 years ago, at the start of the European Gravettian period, since by 28,000 BC the first classical Venus Figurines show up.

What I am suggesting here is that the predecessors of the Olmecs had significant continuous records dating back 34,000 years, and possibly 41,000 years. Is this possible? Not only do I think it possible, but I think a number of factors conspired to allow this to happen. But first I should remind the reader that in Europe we see a similar continuity in the cave paintings -- a record, if you will, stretching across the western continent for an unbelievable 20,000 years where the imagery remained unchanged, and never a single sensible human form was added to the herds of animals. Only that which was at odds with the normal visible world was recorded. That, in effect, is the status of the Olmec, or pre-Olmec, records also.

If the climate had not turned bad in Southern Europe in about 10,900 BC, perhaps we would today have readings on the significance and meaning of the cave paintings, direct from the mouths of the grandchildren of the original painters, 400 generations later. But the visual record was left behind as the artists migrated away.

I should also point out again the inviolable nature of these cave decorations. Chauvet cave was decorated about 31,000 years ago and entered again 4000 years later for an inspection tour, but left untouched. There are other examples of humans recognizing the work of other people and respecting the past efforts. Four thousand years is twice as long as all of our sensible recorded history.

The Olmecs (I'll term these people "Olmecs," even though they may have been an entirely different tribe) may have migrated after 10,900 BC, when the northern jungles of Brazil shriveled up with the advent of the shadow days of the Younger Dryas. Or it may have happened later. After 9000 BC climatic conditions improved again, but the jungle and the rains had moved hundreds of miles north. Sometime after 8000 BC maize was first cultivated. [\[note 5\]](#)

Unlike the caves of France, the Olmecs took their records with them, for they were portable, painted on skins or wood slats, and later recopied to folding bark books. The records not only included the extensive sightings of the three-cornered stone, but also the disarticulated form of the Saturnian planets recorded in European archaeology in the Magdalenian period, and life in the cold of the shadows of the period after 10,900 BC, as retold in the *Popol Vuh*.

All of these records might have been discarded if it had not been for the later recognition that the first record of the world was an image of the maize kernel. The importance of maize to Central America, and eventually to all of the Americas, cannot be underestimated. Maize is the most productive cereal in the world; it is the easiest to alter genetically; it can be forced to grow under widely diverse conditions -- from the cold river valleys of Minnesota to the rain jungles of Guatemala to the high altitude deserts of the Andes.

Maize was life, and the first book of the Olmecs, as noted by the Quiche Maya in the *Popol Vuh*, was called "The Dawn of Life." It was likely about the maize kernel in the skies.

The other question, of course, is, were there humans 35,000 years ago in Central America, Venezuela, Columbia, Northern Brazil, or Peru? The conviction of US archaeologists is that the American continent could only have been invaded during the cold spell of 10,900 to 9,000 BC when Asiatics might have walked across the Bering Straits, even though there was no glaciation at this time to remove water from oceans, and Alaska was covered by tundra.

But the archaeology of Chile speaks to occupation by 35,000 years ago. North American archaeology has, in the last decade (2000 - 2010), come around to dates of 30,000 and 40,000 for Clovis and pre-Clovis sites. The period prior to the Clovis people, what is now known as the Paleoindian, has been identified with the European Mousterian tool tradition, which dates back some 300,000 years. This is enough time, certainly, to make it to the American Continent.

From Johanna Nichols we have more succinct data, based on grammars along the Pacific basin (requoted from the chapter "Language and Causality"):

"An enormous and sustained wave of human migration started about 50,000 years ago somewhere in Southeast Asia. Over thousands of years, successive bands of people spread out from the region. They could move relatively quickly because they were coastally adapted -- they knew how to make simple boats and make a living from the sea. Over thousands of years,

some carried their languages south and west through coastal New Guinea and into Northern Australia, while others moved clockwise up the coast of Asia, across the Bering Strait into Alaska, then down the west coast of North and South America."

-- Bob Adler, scicom.ucsc.edu

There is no need for "simple boats," for these same people populated all the Pacific Islands, and left their carved petroglyphs after 10,900 BC -- but were wiped off the islands by the flood of 3147 BC. The Americas could have been populated even long before 50,000 BC. After all, Cro-Magnon types had reached western Australia by 65,000 BC, and may have reached South Africa 10,000 years earlier. By boat; always by boat.

In earlier text I suggested that in the long period preceding the (European) Gravettian period (28,000 years ago) Saturn might have regularized its orbit to equal some multiple of Earth years. But it would be highly unlikely that records were kept and engravings made if Saturn had been a constant feature in the night or day skies.

Here are the last six of the seven stones, from Roy's translation:

"Thereupon he became man in the second infinite precious stone of grace. Then there arrived in the second Katun Alpilcon, as the angel was named when he was born. The second grace was permitted to depart in the second infinite night, when no one was present."

"Then he received his divinity, alone and through his own effort, when he came to depart. 'O firmar' he said, when he received his divinity by himself and through his own effort."

"Thereupon he departed and went to the third infinite precious stone of grace. Alba Congel was the name of its angel. This was the third grace."

"Let me proceed to the fourth infinite precious stone of grace, to the fourth night. Atea Ohe was the name of its angel. The fourth grace was born and began to speak, alone and through his own effort. 'Oh god, the ruler! I am after all nothing in myself.' These were his words in his concealment, in his divinity within the grace."

"Let me still proceed,' he said. Then he went to the fifth infinite precious stone of grace, to the fifth infinite night. The fifth grace was born in the fifth Katun. Thereupon he was set up to declare his divinity. Then his angel was born; Decipto was the name of his angel when he was set up."

"Since it is so, let me go. Who might I be? I am a god, a ruler, after all,' and he declared his divinity all alone. 'A ninite dei sin,' he said when he received his divinity all by himself."

"Then he went to the sixth infinite precious stone of grace, to the sixth measured night, to the sixth Katun: 'Ye gods, ye rulers! Make answer to my words. After all, I am nothing in myself alone.'"

"The seventh grace was born. Conlamil was the name of his angel. 'I deliver the things of god to you who are gods. Answer my words. After all, there is no one; no one replies to my words.' Thus he spoke as he caused the seventh grace to be born. And there was joy in his heart at the birth of the seventh Katun, the seven lights, the seventh measured night (and) the seven infinite (things)."

The "measured night" is generally rendered as "immensity of the night" by Bolio. Bolio also translates "Katun" as "warrior" for some poetic reason.

In Europe the series of far-off sightings of Saturn continued past 28,000 BC, when the Fat Lady first shows up in Europe. This would last (in Europe) through the Magdalenian period ending in about 14,000 BC when the figurines stretch to elongated amorphous shapes, the result of seeing the Saturnian planets from an equatorial level. Then much of this ceases in Europe, to be picked up again after 6000 or 4000 BC.

For the Mesoamerican record of the pre-Olmec people a more interesting continuous coincidental chronology can be found in the graph of a record of Carbon-14 differences in marine sediment near Iceland by A.H.L. Voelker (1998), which has become a standard reference, and which shows nine distinct peaks of Carbon-14 differences since 50,000 years before the present.

Except for a peak in 47,000 ya, nothing much happens until 41,000 ya when there is a sudden peak. This date of 41,000 bp is associated with the sudden demise of megafauna in Australia and Southeast Asia, and the appearance of radioactive isotopes above the normal background level. This was presented by Firestone and William Topping in "Terrestrial Evidence of a Nuclear

Catastrophe in Paleoindian Times" (*Mammoth Trumpet Magazine*, 2001) and in the book *The Cycle of Cosmic Catastrophes* (2006) by Firestone, West, and Warwick-Smith. The last of the remaining series of eight peaks falls in 12,900 bp, the start of the shadow period of the Younger Dryas.

It is possible to misread both this data, as well as this well-intended but absolutely obscure section of the *Chilam Balam*, so that perhaps there is no relationship. This is pointed out by the fact that in the following paragraphs very little is said about the Younger Dryas. My confidence in seeing a connection stems from the fact that I have consistently been able to penetrate the arcana of the *Chilam Balam* on the basis of matching details against the model derived from the mythology of China, India, Mesopotamia, and Egypt. This is not the case here, but the match is against chronographical data.

The seventh stone might actually be the very last contact shown in the chart, in 10,900 BC (12,900 bp), which obliterated and burned down the North American landscape. If so, then the first instance of a contact with Saturn has to be dated to 38,000 bp. I can count seven "Carbon-14 events" to the start of the Younger Dryas if I include the Younger Dryas event itself. The cataclysm of 34,000 bp also matches the development of the diverse toolkit of Cro-Magnon in Europe and elsewhere -- suggesting the sudden cultural development of language, which may have been influenced by electric or radioactive levels in the remote past.

In the next few paragraphs we will move from 38,000 bp to 12,900 bp (10,900 BC), the start of the Younger Dryas. What is missing from the text is the details of the shadow period of the Younger Dryas after 10,900 BC, although this is certainly represented in the descriptions of the earlier seven stones (as being of an infinite night). We will, however, receive notice of the opossum plasmoid (after 10,900 BC), the plasma instabilities recorded as petroglyphs (10,900 BC to 4077 BC), the later swirling clouds (after 9000 BC), and the egg standing in the sky (before circa 4900 BC) -- all before the fire in the sky (4077 BC).

We are next given notice of the extensive passage of time, some conglomerated form, notice of a long night, the rearrangement of other stones, and eventually the birth of God -- in essence the lighting up of Saturn. I should point out that, on the basis of much later claims, it is 10,900 BC, the first appearance of the Peratt column and the plasmoids which is the "first creation" -- not the lighting up of Saturn in 4077 BC.

The endless night

A paragraph about an extended passage of time follows. It probably pertains to the extended time of the actions of the following paragraphs, or as likely makes the case for the previous text about the stones.

"Abiento bocayento de la zipil na de fente note. Sustina gracia, trece mili, uno cargo bende. The first, the second, the thirteenth unfolding; thirteen banners of the Katuns; three, seven, eight thousand."

The first line is fake Latin and Spanish. The second line delineates a rather large time period, which I will discuss further below, under the heading of "Notes on the large spans of time." Bolio has a similar translation, *"three times four hundred epochs, thousands of epochs."* This better catches the poetic expression (as a metaphor) for an immense period of time, and was probably meant to pertain to the period from 10,900 BC to 8347 BC, but is also (I suspect) applied retroactively to the appearances of the seven stones.

This is thus perhaps all that is said of what would be the time of shadows, 10,900 BC to 9000 BC. Note that the second book of the Quiche Maya was called "Our Place in the Shadows." The *Popol Vuh* spends an inordinate amount of time recalling the miseries of the 1500 years of the Younger Dryas -- the dark before the chaos. In fact, the authors of the *Popol Vuh* warn us that it will take considerable time to set out the details of this period of misery. It was not limited to the Quiche Maya, but involved all the other tribes.

Next comes the birth of God, although it will take time to arrange heaven and start creation -- toward the end of a long period. The long nights of 10,900 to 9,000 BC are mentioned again in passing over the course of the next four paragraphs (and as the "infinite nights" of the previous text).

God wakes up

"Then God the Father awoke to consciousness alone in person; in the three-cornered precious stone of grace he awoke to consciousness, God the Father, as his name was known to be. Unidad and God the Father, these were his names, cleft from the Katun for you."

"There were three generations suddenly augmented in stature when he came. Seven were the generations of his angels. Four times did he first speak. There was one seal in the darkness, one seal on high. 'I am the beginning and I shall be the end.'"

The "three generations ... augmented in stature" probably represent three ball plasmoids of the south.

The "seven generations of his angels" are probably the count of Saturn's readily visible satellites -- the same count as in Egypt, where they are called "the helpers of the King." This should not be so, since Earth was still within the swirling glow mode plasma of Saturn. Maybe this detail was added at a much later time. Or else this is a reference to the appearances of the seven stones.

I cannot easily place the "four times he spoke." This might be a reference to the seven stones. If so, it could be the damaging contacts with Saturn: 41,000 bp, 34,000 bp, 16,000 bp, and 13,000 bp, where 13,000 bp (12,900) is the start of the Younger Dryas. [\[note 6\]](#)

"Here are his words in their mighty entirety. 'Datate, here to that which has been received. I am Unidate, I am also Unitata, I am the Dove, I am Unitata Anuni. Unidad cometh.'"

"Nilu was the name of the night. This was the first speech of God; this was the first speech of the Father. Of cleansed stone was his precious stone alone in the night."

The night is mentioned three times, "in the darkness," "the name of the night," and "alone in the night," in addition to "Nilu." It is likely that these last few lines actually reference the shadow of the Younger Dryas (10,900 BC to 9,000 BC), followed by the Peratt column (which is usually presented as speech). The rest are fake elements from the Latin liturgy.

The six winds

"Etomas, Cipancas was the name of the wind. Hun Katun was his father. Otahocanil Aucangel was the name of the wind. H(i)eron was the name of the Wind. Xicluto-tu-tanil was the name of the wind. Virtutus was the name of the wind. Joramis was the name of the wind in the second Katun. This was what he said when he changed the stone: 'Jaxyonlactalpa.' He covered the name of the holy heaven which our holy Lord, the Father raised up."

Here we have the mention of six winds. Roys writes, "Maya /ik/, here translated as wind, also means breath, life and spirit." If so, then I would suggest it could be the haze of the chaos surrounding Saturn -- a coma -- or could be beams of

electrons, seen near Earth as six of the 28 which surrounded Earth. All other descriptions in antiquity reduce these to four visible streamers.

The Peratt Column, the opossum

At this point a serpent is introduced which initially seemed entirely out of place, since I first thought it to be Venus and its plasma tail connection to Saturn. But it is the tail of the opossum, the column extending from the far plasmoid, up toward the south polar region of the Earth (which, of course, looked like it extended up from the beast).

"Bolay [beast] was the name of the serpent of the second [other] heaven. He was in the dust at the feet of Sustinal Gracia [sustinal grace, Saturn in the north], as he was called. Then Lonmias was formed. The sharp stone was his stone within the night. Zihontun was his stone, when these stones were fixed in their places."

"Three times [or three] they were set at the foot of Sustinal Gracia [sustinal grace, Saturn]. These stones were born, they were beneath the one stone, the mighty pointed stone [Saturn], the stone column [the elongated form of the Saturnian planets, originally seen during the European Magdalenian period?], the mighty pointed clashing stone. They were manifested [shown] all over the world (by) God the Father, the first ruler."

The "beast" is of course the Great White Opossum in the south, discussed in the chapter "The Peratt Column." The serpent is probably its tail, or there could be a translation glitch, since "serpent" and "sky" is the same word in Mayan. Notes on the "Saturnian stones" are included with the text above. "The mighty pointed clashing stone" is an interesting concept. It would suggest a changing plasma connection between the Saturnian planets, something also suggested by the variety of elongated and distorted forms of the European Magdalenian (although far too early), or it could be the thunderous sound of the Peratt Column switching to arc mode.

Although the column was well outside the Earth's atmosphere, electrical discharges above the stratosphere were perhaps "heard" within the atmosphere of Earth, as, with exploding bolides today. The earlier mention of "four times did he first speak," could be accounted for under these conditions Three times the plasmoid started up (as we well know from other sources), and the last time the arc from Saturn connected to Earth instead.

The *Popol Vuh* assigns the first four fathers of the Quiche nation to these four electron beams. Amazing as this is, there is no question on this assignment in the *Popol Vuh*. The text reads:

"Perfectly they saw, perfectly they knew everything under the sky, whenever they looked."

Bolio ends the first paragraph above with the following, perhaps skipping the references to Lonmias and Zihontun:

"There wisdom is formed, beating the stone inside the darkness."

"Beating the stone inside the darkness" might express the same idea as the clashing stone. On the other hand, it could refer to the three plasmoids seen in the south, and this would probably mean that the far plasmoid would be seen rising daily in the sky, and then lowering again. They which most likely appear in the southeast and disappeared later in the southwest. "Inside the darkness," most likely recalls the time of the shadow of the Younger Dryas.

The following is Bolio's somewhat more lucid translation of the second paragraph:

"And the Archetypal Stone was created that founds the stones that followed, the three Stones that were to be seated at the feet of the Sustinal Grace. The stones that were born were beneath the First Stone. And they were equal sisters."

This at least clearly points to a count of three plasmoids. The "Survey of the World" (to be discussed separately below) calls them trees: "the white 'guaje', the 'ixculun' (and) the gumbo-limbo (tree)." These lumps in the plasma column are noted as being "at the feet of" or "born beneath the First Stone."

The Olmecs knew where Saturn was, even though it might have been clouded in mists -- and perhaps for as much as 5000 years after 10,9000 BC. "At the feet of the Sustinal Grace" (Roys has "in the dust at the feet") also implies that the plasma streams continued through the sky to the north and contacted the globe of Saturn. In arc mode this would certainly have been seen (although terminating at Mars and Mercury. This much is also strongly suggested by the existence of oval rings of standing stones at the northeast ends of some of the causeways at Carnac (in addition to the circles of stones at the southwestern ends).

The "three stones" are not what archaeologists identified as the "three hearth stones" in Orion which are referenced by the Maya in stelae. The "three stones" were placed in the skies at the start of the "first creation" in 10,900 BC.

The Peratt discontinuities

Then follows a totally opaque paragraph:

"In the first Katun was born the only son of God; in the second Katun, the Father. In the third Katun was Expleo-ucaan, as he was called, who chastised him named Chac Opilla ['great work,' from 'opera,' but Luxton reads "lightning" for opilla] when he set up the heavens. Enpileo-u-caan ['complete the sky' reads Edmonson] was his name. Expleo [a name for the sky] was his name within the first noose of God. Hebones was the only son of God. (Like) a mirror he was borne astride on the shoulder of his father, on the stone of his father."

Bolio has a text considerably more lucid:

"Then entered Chac the giant, through the crevice of the Stone. Everyone then was a giant, in one lone town, those of all the lands. And God was the first king."

"In the First epoch, the only Son of God was created. In the Second epoch, the Word. In the Third epoch, Expleo [the name of the sky] was created."

"And Chac, the Giant, was born, whose name was Opilla [lightning], at the same time as his heaven, Empileo, was formed. Expleo [sky] is its name inside the first Book of God. Hebones. The only Son of God, mirror that will open his beauty, is the Lord of the Stone, Father."

At best I would assume this to be about various forms of plasma instabilities -- including a giant "squatting man" form. The text suggests that the plasma instabilities showed up at three different times. Since the periods are called "epochs" these would hardly consist of yearly intervals. Although Peratt has suggested that there were apparently three periods when the cliff-wall forms were carved, he also suggested that any instabilities of the plasma column would have lasted for decades.

The previous paragraph by Roys also noted that *"three times they [the stones] were set at the foot of Sustinal Gracia,"* although Bolio translates "three times"

as "three stones." There are three main causeways of standing stones at Carnac also (geographically all in a line). This detail from Carnac could certainly indicate the number of appearances of the Peratt column.

The change of "noose of God" to the "book of God" is an interesting change in translation. I'm happier with "the book of God." I wonder if this was one of the sacred books of antiquity.

The nova event of Saturn of 4077 BC

The third book of the Quiche Maya was called "The Light that Came from Beside the Sea" (perhaps this is the "first Book of God" mentioned above). This book recalls the "creation event" of 4077 BC. To have Saturn appear "beside the sea," the Olmec observers would have been on the north coast of South America or the east coast of Central America. [\[note 7\]](#)

"Then, it is said, the boldness of the heaven on high was created. This was one grace, one stone; then fire was created, Tixitate was his name, the light of the heavens. Sustinal, they say, was the light from that which lighted the heaven. Acpa, it was, who made the Katun after the light originated in the heavens. Alpa-u-manga was his name after it ended."

Luxton reads "Alpa-u-manga" as "Alpha and Omega." This is typical of attempts to give this text a sort of Christian flavor, as if Christian priests had to be mollified.

Luxton also notes that in a translation by Edmonson "sustinal" is not used as a name, but with the remainder of the line. The text is translated as, "sustaining will be the lightning, the shining of heaven." I would agree with Edmonson's translation.

There is no question that this is a celestial light, and associated with the "one stone" seen in the sky. The composite image of Saturn would have been reduced to a single orb as Earth dropped further below the Saturnian planets. The exceptions are Venus and Uranus, both of which were offset from the stack of planets. I would suggest that Uranus showed at the right edge, somewhat above Saturn.

Venus would show to the left of Saturn, so that, if Saturn is understood as a large person in the sky, Venus, with its tail connected to Saturn, would be understood as his right arm, holding some object. This is the scepter of kings and chiefs,

both in Mesoamerica and elsewhere in the world, the cudgel of Narmer, and the "strong right arm" of the "Ancient of Days" figure of the Kabbalah.

As I have suggested elsewhere, this particular imagery depends on the assumption that Saturn rotated at the same rate as Earth, so that it would seem to stand still, or nearly so.

Interestingly, the paragraph suggests that the light (assumed here to be the nova event and blazing of Saturn in 4077 BC) only lasted a Katun, 20 years, for it receives a different name after the Katun ends. The two lines are, "Acpa, it was, who made the Katun after the light originated in the heavens. Alpa-u-manga was his name after it ended."

The names, as elsewhere, are nonsense.

The creation of the rings

(These are) the angels of the winds which were set up while he created the star, when the world was not yet lighted, when there was neither heaven nor earth:

*the Red Pauahtun,
the White Pauahtun,
the Black Pauahtun,
the Yellow Pauahtun."*

Bolio has, "the angels, spirits of the winds, were raised while the stars were created." I would go with "star" as singular. This describes the star form of a glow mode plasma impinging on Mercury from Saturn. "Star" as plural does not happen until a thousand years later, when the southern stars show up.

There are footnotes on these directional Pauahtuns being the winds or the rain gods of the four cardinal directions, cited even by Landa, but perhaps more significant is Roy's note:

"The word, Pauahtun, is difficult to translate. The last two syllables, Uah and Tun, suggest a stone or a pillar set up or erected; but they are evidently personages, and the writer is inclined to identify them with the 'angels' described by Landa in his account of the ceremonies preceding the New Year."

The suggestion of "pillars" by Roys equates the four Pauahtuns not with winds, but with the four supports of the heavens found also in Egyptian and Chinese mythology (and Landa too). From Egypt, quoting Budge:

"At a very early date the four pillars were identified with 'the four ancient khu's who dwell in the hair of Horus,' who are also said to be 'the four gods who stand by the pillar-sceptres of heaven.' These four gods are 'children of Horus,' and their names are Amset, Hapi, Tuamautef, and Qebhsennuf. They were supposed to preside over the four quarters of the world, and subsequently were acknowledged to be the gods of the cardinal points."

-- E. A. Budge in *The Book of the Dead* (1895)

"He," in Roy's translation ("while he created the star"), is perhaps God the Father, identified earlier. "He" sort of weaves in and out of this narrative, and the identity of "he" is not always certain. At times it seems as if "he" is the personification of the original book that these histories were being read from.

At any rate, "he" created the star. The star has been identified by the Saturnians of Thunderbolts.info as four or more streams of plasma, in columnar form from (what looked like) the equatorial region of Saturn, impinging on Mercury (identified by them as Venus), which occupied a position below Saturn and above Mars, with the streams changing to glow mode on approaching Mercury.

But there is a completely different reading for the four winds. The four "winds" or "angels of the winds" are color-coded in the manner of the later directional trees. I suspect it may just have meant to signify that these were colorful. I also would suggest that these represent the rings which would have exploded outward from Saturn's equatorial region. Despite the association with the directional colors, there is no indication that these "winds" are meant to be assigned to the cardinal directions in the sky, except, of course, as suggested in the paragraph above.

We could thus assume, that they may represent four equatorial rings of Saturn of differing colors. Later indications are that eventually there were three sets of clearly seen rings, as in the *I Ching* and many other sources, and as mostly true today.

Creation of the rings would take time, and would only happen after the surface of Saturn lighted up, which is why it would be recorded in a separate paragraph (or set of sentences, since the *Chilam Balam* indicates no paragraphs).

What is astounding is that seemingly here we have here a step-by-step description of the process of a gas-giant planet going nova, which fully matches our expectations as determined from the nature of plasma, and the reconstruction made by other researchers from Egyptian, Mesopotamian, and Vedic sources. No other people in the world recorded these events in books to be passed down for thousands of years.

The assembly of God's heaven

"Here was the first heaven where God the Father was set up, grasping in his hand his stone, grasping his 'cangel' [dragon], grasping his wheel on which are hung the four angels of the winds. Cerpinus was the name of him who, under Orele, measured the land."

God the father (Saturn, already established as on fire, "the light of heaven") here holds Uranus (his stone), Venus (the dragon), he sits on his rings (the wheel) or holds them, and is accompanied by four other prominent satellites (the four angels of the winds), and (below him) Mars (Cerpinus) "measured the land." This last was a single white streak (a plasma column in glow mode) extending from below Mars to Earth. The imagery of the main god (here God the Father), holding his appliances, is duplicated for Oxlahun-ti-ku in the world history of Book 10 of the *Chilam Balam*.

The Palette of Narmer duplicates the above image (of God the Father) also, except that the appliances are held by Mars during one of its lowerings to Earth. Saturn, in the Palette of Narmer, has been reduced to the knob at the top of the crown of the pharaoh. This might have been Mercury, which would account for the fact that the rings are not shown at all.

I might be in error about who Cerpinus is. Luxton suggests that "Cerpinus" is the constellation Cerpinus (which I cannot locate, unless Serpens is meant), rather than Mars, and located below "Orele" which he suggests is the constellation Orion. The very bright star Canopus is located below Orion. This might have become a model of the earlier southern plasmoids and the lines drawn north "to measure the land."

If this line stands on its own, then it might be the single white column, noted as "the rope" in Book 10 of the *Chilam Balam*, which reads "then it was that fire descended, then the rope descended."

Following the establishment of God's heaven, Christian names for major planets are given.

"He set up the planets, Saturn, Jupiter, Mars, Venus, which he said were held in the grasp of the god in heaven when he created them. This was the name of the heaven, cristalino. Here were the Angels."

It is disappointing to see these planets, which were the Gods of the Maya, assigned here to a Christian cosmology. At the actual time of this history, there was only Saturn in concert with Venus (Mercury) and Mars. Jupiter was still unrecognized as an actor in the creation drama, although recalled from earlier times. It seems likely, therefore, that the four large satellites of Saturn are meant here, rather than four planets.

"Corpinus was the name of him who held aloft on the palm of his hand the Blessed Father (or, the blessing of the Father) when there was neither heaven nor earth. Inpicco was his name when all the angels were asperged [sprinkled]. Baloyo was his name when (the water) was sprinkled [or, when the angels were scattered]. Seros was his name, Et sepeuas. Laus Deo."

Luxton: Corpinus is likely Scorpio; Seros might be Sirius.

Holding "the blessing of the Father" on "the palm of his hand" seems like a gesture which should be assigned to Venus, in that we can imagine Venus, appearing left of the apparition, looking like a hand held in blessing. Of course there is a problem in that the "hand" here is personified, and I am not sure if the upheld hand was also recognized as a blessing in Mesoamerica. But possibly the scribe here again applies Christian symbols to a reading of ancient texts. His references to sprinkling -- presumably with Holy Water -- is clearly a Christian sacramental form.

The four angels, as I noted earlier, are most likely the satellites of Saturn. What the sprinkling otherwise represents, I do not know. At first I thought it might simply be the continuous radial lightning strokes between the rings. But Bolio has, "[Inpicco] scattered all the angels." Bolio's rendering is confusing, and does not seem to relate to any expected process except the obvious movement of the satellites of Saturn.

The lowering of Mars to Earth.

"Below were Chac Bolay Balam and the cacao called balamté [a species of cacao]. Esperas was the name of the sixth heaven; Isperas was the name of the seventh heaven."

Chac Bolay Balam translates as Giant Jaguar Beast. It is Mars, not only because Chac Bolay Balam is located below, meaning below the One Stone (or God), but primarily because of the row of cacao beans below. This is a feature of Mars which I have been unable to identify, yet it recurs in Maya iconography -- a head with a missing lower jaw and with protruding teeth. It may, visually, represent the lower edge of the jagged lower hemisphere of Mars. This suggests, correctly, that when Mars was lit by the Sun (the Sun was now in the sky), part of the lower hemisphere would disappear from view from the vantage point of Earth, because the Earth occupied a position lower than Mars with respect to the direction from which sunlight came -- just as, during the day today, the part of the Moon which is in shadow is not seen.

Chac Bolay Balam is thus Bolon Dzacab, "Nine Generations," of Book 10, who has been identified by archaeologists as Mars, and who appeared to lower itself toward Earth 8 times between 4077 BC and 3147 BC. Having identified Mars as located below the One Stone, the text continues with the assertion that now the world was about to be created by God.

"Then the world was created by God the ruler in the seventh Katun, created in the darkness named Espiritu."

The "seventh Katun" raises my suspicions that the seventh stone gave us God the Father (instead of the 8th). Additional considerations are listed further below.

"St. Edendeus (and) St. Eluceo were the saints who witnessed the birth of him who was hidden within the stone, hidden within the night."

Roys comments on the word "stone," in the line above about St. Edendeus and St. Eluceo:

"Maya, 'u lamay Tun,' probably the planted seed corn. The definition of this phrase, 'the square stone,' symbolizing the twenty years of the Katun, has long been accepted. The word for squared, however, is 'amay,' not 'lamay,' which means sunk out of sight, hidden."

But "lamay" probably is correct. What is being described, as the creation of the world, is actually the lowering of Mars from Saturn -- the first of some eight

approaches to Earth between 4077 BC and 3147 BC. Book 10 of the *Chilam Balam* describes the mass of maize mash left behind, from which humanity was created, according to the *Popol Vuh*. Thus certainly we have here the creation of humans -- but after the creation of the world.

We should also not forget that we have, in this manuscript, the efforts of 16th century AD scribes at interpreting a mostly graphic record dating back to remote antiquity. If the original scribes had failed to note that the world and humanity was already in existence in 4077 BC, then there was no way for the later readers of these records to assume anything other. Only after 4077 BC, when a cloud dome appears at the north horizon, anchored to Earth, do we have a record for the existence of Earth itself. This is no different from the cave decorations in Western Europe, where for 20,000 years not a single human figure was depicted -- from which it could be concluded that there were as yet no humans at that time.

I probably do not need to point out to the reader that St. Edendeus and St. Eluceo, who witnessed the descent of Mars -- described as the birth of God -- are probably the two satellites of Mars.

Now we also need to get back to the earlier comment by Roys, about the "square stone," which he thinks is a misspelling of "amay," meaning "squared," as "lamay," meaning "sunk out of sight." Knowing that we are seeing a description of Mars sinking toward Earth, it is obvious that "sunk out of sight" was indeed intended. The "sinking out of sight" will be repeated two paragraphs further down. I will get back to this below.

Interestingly, Bolio adds, "It is repeated," and "then it burned, during the night," to the line about St. Edendeus and St. Eluceo where Roys has, "hidden within the night." This is likely a series of the arc mode cathode displays at the lower hemisphere of Mars, aimed at Earth, and clearly seen as Mars drew closer.

Next we have an incantation in the manner of a Christian prayer, composed, however, of nonsense words:

"These were the words said by him who was hidden within the stone, hidden within the night: 'Tronas Aleseyo de mundo de gracia. En apedia tejo çipi dia te en pieted gracia. Santo Esuleptun jam estum est gracia. Suplilis el timeo me firme abin finitis gracia, y metis absolutum ti metis de gracia. Abegintis gracia, Edendeo gracia, de fentis de gracia, fenoplis Tun gracia.

Locom dar yme gracia, tretris u mis gracia. Noçi luçi de gracia, in pricio de gracia, trese mili uno de cargo, leonte."

Roys comments, "Little, if any, of this hocus-pocus is Maya, and it is the conjecture of the translator that its source was some itinerant Spanish fortune-teller or astrologer. The repetition of the word 'gracia' suggests an incantation to make the corn grow."

Bolio similarly has, "This corrupted Latin text appears to be some sort of incantation to favor the creation of corn."

The discussion on creation can now reach a recap and a conclusion, starting with another mention of the immense span of time which lapsed before creation. (To be discussed further below.) Notice that God the Father is soon forgotten. What comes forward, and what is claimed to have its genesis in heaven, is maize.

"One, two, thirteen, one division, thirteen 'bakam' of Katuns. Three, seven, eight thousand was the creation of the world, when he who was hidden within the stone, hidden within the night, was born, when there was neither heaven nor earth."

Bolio has, "before the land was to awaken," for "creation of the world," which clearly indicates that this is a restatement, not an additional long span of time.

"Then God the Father spoke alone, by his own efforts, in the darkness that clung like a thrice withered fruit (to the tree). This was the first word of God, when there was neither heaven nor earth, when he came out of the stone and fell into the second stone. Then it was that he declared his divinity."

Notice that God the Father moves to Earth via the second stone, Mars.

"Then resounded eight thousand Katuns at the word of the first stone of grace, the first ornamented [embroidered] stone of grace. It was the macaw that warmed it well behind the 'acantun.'"

"Who was born when our father descended?"

"Thou knowest. There was born the first macaw who cast the stones behind the 'acantun' [pedestal]."

The macaw is the assembly of Saturn, Uranus, Venus, and the rings of Saturn. This becomes clear with the second use of macaw, above. The Saturnian assembly is here no longer identified with God the Father, who has slipped into the "second stone" and visited Earth to deliver maize.

I do not think that "eight thousand Katuns" can be taken literally, for this would represent 160,000 years if this were a time span of Katuns. Even if they were meant to be Tuns, it would still be way too long -- 8000 years. I'll get back to this use of "8000" further below.

Roys notes, "acantun could be translated as a stone set up on a foundation." It could also be just the pedestal; Bolio has "mountains" for "acantun."

"Warmed it well" makes sense. It refers to a change of perspective (because Mars was closer to Earth) which allowed the lower hemisphere of Mars to be seen as "on fire" from cathode arcs. If this was the case as Mars was approaching closer to Earth, it would have looked as if Mars was "warming" the acantun -- dome, mountain, or pedestal -- being just above (or near) the dome of steam at the north horizon.

Bolio has "And its word was a measurement of grace, a spark of grace, and it broke and pierced the back of the mountains."

I wonder if "a spark [of grace]" is verbally equivalent to the fires seen at the lower half of Mars. Piercing the back of the mountains, drilling holes in the back of mountains, or for that matter, throwing stones behind the pedestal or mounted stone (which has to be the vapor dome at the north horizon), may describe the disappearance of Mars from view (seen from 20 or 10 degrees latitude) when it reached the closest position to Earth.

Mars was headed for the Earth's north geographic pole as the nearest gravitational contact point. The plasma stream from Saturn, enclosing Mars, would have to bend as it neared Earth to land at the north magnetic pole. The holes pierced in the mountain, the cloud bank at the north horizon, are the shadowed fluted areas which would show up in the morning and evening light of the Sun, as I have pointed out in earlier texts.

The north magnetic pole and the water vapor dome most likely was located at this time at about Hudson Bay. This is the reason why the Olmec record contains much more detail of the close approaches of Mars than recollections from other

locations on Earth. Other recollections only note that Mars became a giant at times. Mesoamerica is directly south of Hudson Bay.

"How was the grain of maize born? How, indeed, father?"

"Thou knowest. The tender green (shoot) was born in heaven."

The text continues with more nonsense:

"Ciripacte, horca mundo. Ni mompan est noche. Amanena, omonena, apa opa,' (was said) when the wind emerged from the great stone of grace. 'Cipiones ted coruna, pater profecido,' were his words when he arrived at the seventh stratum of the solid rock of grace."

"Bal te piones, ordeçipio, reçi quenta noche. Hun ebriete, hun cute profeciado,' were the words of the Angel, Jerupiter. Then the sky was put in its place, 'Corporales ti ojales,' by the first pope, the face of the Katun, the burden of the Katun 13 Ahau."

Bolio has "High Priest" for "pope." Suzanne D. Fisher inserts "buttonholes" after Bolio's use of "Corporales ti ojales." The mention of Katun 13-Ahau is included with these lines by Roys. Bolio moves it to the beginning of the next paragraph, which makes more sense, since Katun 13-Ahau will signal the end of the creation event, followed directly by Katun 11-Ahau, which is always understood as the start of history.

The end of creation.

The translation by Roys has, as the next few lines:

"The face of the sun shall be turned from its course, it shall be turned face down during the reign of the perishable men, the perishable rulers. Five days the sun is eclipsed, and then shall be seen the torch of (Katun) 13 Ahau, a sign given by God that death shall come to the rulers of this land."

The "five days" is a reference to an event of the far future: the 685 BC nova event, when the Sun (our current Sun) in fact "turned from its course" and was occluded for five days by the arrival of the plasmoid from Jupiter. These events, as was well known, happened in Katun 3-Ahau which ends in 668 BC (6.4.0.0.0), not in Katun 13-Ahau.

All of this is then put in the service of prophesy of an end-of-creation scenario in the arrival of Katun 13-Ahau.

"Thus it shall come about that the first rulers are driven from their towns. Then Christianity (shall) have come here to the land."

"Thus it is that God, our Father, gives a sign when they shall come, because there is no agreement. The descendants (of the former rulers) are dishonored and brought to misery; we are christianized, while they treat us like animals. There is sorrow in the heart of God because of these "suckers" [a reference to the Spanish]."

Bolio starts with:

"This is the face of the Katun, the face of the Katun, of the Thirteen Ahau: the face of the Sun will be broken. It will fall, breaking up on the gods of now. Five days the sun will be bitten and [not] seen. This is the representation of the Thirteen Ahau."

Katun 13-Ahau (real or not) is selected in this narrative because it precedes Katun 11-Ahau. The appeal to Katun 13-Ahau is probably a literary device, based on the well-established supposition that all pre-history happens during a Katun 11-Ahau (which follows directly on Katun 13-Ahau). Book 10 places all the action of the end of the "first creation" in a Katun 11-Ahau.

What is more important to notice is that Katun 13-Ahau is here used predictively to signal the intrusion of Christianity. Roys gives recognition to this with the wording, "thus it shall come about... ." It is not certain, in fact, if this description of Katun 13-Ahau belongs with this text.

The following page (of the original manuscript) is written in a different hand, and reads:

"In the year Fifteen hundred and thirty-nine, 1539, to the east was the door of the House of Don Juan Montejo, to introduce Christianity here to the land of Yucalpeten, Yucatan."

[signed:] *"Chilam Balam, the prophet."*

Roys writes, about Don Juan Montejo, and the door facing east:

"Here as elsewhere Don Juan de Montejo is confused with his father, Don Francisco, the Spanish conqueror. The door of the old Montejo mansion in Merida faces north, not east, and it is the belief of the translator that this reference is not to the actual house of Montejo, but to the compartment, or so-called 'house,' of the Katun-wheel in which is pictured Katun 11 Ahau, the first Katun of the Spanish Conquest in which Montejo ruled the country. The Katun-wheel on page 132 of the Chumayel ascribes Katun 11 Ahau to the east."

To certify to future readers that this was a prophecy, someone had appended the signature of Chilam Balam.

Notes on the large spans of time

A number of times in this text, there are suggestions of enormous spans of time. These are, as it turns out, poetic constructs. We should be able to recognize these poetic (that is, metaphorical) references to large spans of time, like "three times four hundred epochs, thousands of epochs," in the texts.

For the period of the seven triangular stones each line is augmented with phrases like, "in the second infinite night, when no one was present." We know (assuming there is a correspondence between the seven stones and the seven Carbon-14 peaks) that the intervals between appearances of the three-cornered stones spanned thousands of years, for if Saturn were a constant element in the skies, no record would have been made in the Americas, Europe, Asia, and Africa.

At the end of the series of the seven three-cornered stones is a phrase expressing an astounding time span, *"The first, the second, the thirteenth unfolding; thirteen banners of the Katuns; three, seven, eight thousand."*

Assuming Roys's translation is accurate, the *"first, the second, the thirteenth unfolding"* seems like a literary lead-up to the statement *"the thirteenth unfolding; thirteen banners of the Katuns."*

The "thirteenth unfolding" is of course the extent of the whole of the "second creation" (not the "first creation"), which would have been the 13 Baktuns from 8347 BC to 3147 BC. A complete rotation of the calendar is 13 Baktuns.

This is exactly what other records claim: that in 3147 BC, 13 Baktuns were completed. Although it is possible to dismiss the text as metaphorical for "large

spans of time" we should keep in mind that the Maya were convinced that the previous creation (the "first creation"), which ended in 8347 BC, had lasted 13 Baktuns, or at least ended when the Baktun count reached 13.

The next phrase, *"three, seven, eight thousand,"* would seem to refer to the time before the "first creation," that is, the time of the seven stones. If taken together with the next line, *"then God the Father awoke to consciousness alone in person,"* it would certainly seem to point to the start of the "first creation" as a terminal event of a yet larger span of time.

Here we need to account for perhaps 20,000 years (to about 34,000 bp), but 18,000 Katuns is 7,200,000 years -- longer than the complete span of time of the existence of hominids. On the other hand, if we add the *"three, seven, [and] eight thousand,"* and assume these to be Tuns (years) rather than Katuns, we have a time span of 18,000 years, which is not unreasonable. It takes the history of the "seven stones" back to about 30,500 bp (18,000 years before 12,900 bp), which is about the time when caves in Western Europe were first decorated.

The second use of multiple Katuns reads, *"One, two, thirteen, one division, thirteen 'bakam' of Katuns. Three, seven, eight thousand was the creation of the world, when he who was hidden within the stone, hidden within the night, was born."* This is almost an exact restatement of the earlier phrase about the span of time before the start of the "first creation."

As I have mentioned earlier, the *Chilam Balam* has no punctuation, and no indication of where sentences and paragraphs start or end. Additionally, translators are hampered by the fact that without a structure of events such as proposed here, they were faced with a tale of utter nonsense. This shows in the divergence between the two translations, and in the fact that, even with the structure I have introduced, at most we have only hints at what is being told.

There is another solution, however. The repeated use of the phrase:

*"One, two, thirteen, one division,
thirteen 'bakam' of Katuns.
Three, seven, eight thousand
was the creation of the world,"*

... of Book 11 of the *Chilam Balam* can be explained as a metaphor for an exceedingly large measure of time, without reference to any specific count of years.

Looking at the methods of computation of the people of Mesoamerica it becomes clear that "One, two ... three, seven, eight thousand" is a statement about the content of the "400s" register, the third row of the Mesoamerican 3x3 calculation board. The third row represented values of 2000, 4000, and 8000. [\[note 8\]](#)

The value of 8000, the multiplier for the last space on the board, is thus representative of the highest value of any use in commerce or in the accumulation of years. The numbers "one, two ... three, seven" are the multipliers for the values represented on the 3x3 board, and signify the progressive filling of the spaces of a row -- a metonym for counting. This seems to be the idea behind "one, two, ... three, seven, eight thousand."

This becomes clear when the full quote from the "Chilam Balam" is expanded line by line:

*"One, two,
thirteen, one division,
thirteen 'bakam' of Katuns.
Three, seven,
eight thousand
was the creation of the world"*

As poetry this might be parsed differently, but what should be obvious is that "One, two" are the values filling the first (1 0 0) and the second (0 1 0) counting spaces -- while "three" and "seven" designate the additional binary values filling in the first and second (1 1 0) and the first, second, and third (1 1 1) spaces. For the third row this ends in a multiplier value of 8000. I realize that this skips "four" (0 0 1), "five" (1 0 1), and "six" (0 1 1), but we are dealing with poetry here, not math.

Thus the four lines from Book 11 of the *Chilam Balam* signify a "filling out" of the counting spaces to what would be the largest accumulation of a number count most likely used by the Maya (assuming no trader would pack more than 8000 cacao beans).

On the other hand, the other phrase, "Thirteen 'bakam' of Katuns," represents thirteen measures of 400 years, a total of 5200 years, "one rotation" of the calendar -- the same calendar which recycled in 3147 BC.

That the Maya used poetry in the *Chilam Balam* is affirmed by Munro Edmonson, in "Some Postclassic Questions About The Classic Maya" (*Fifth Palenque Round Table*, 1978), where he writes:

"Did the Classic Maya use parallelistic couplets? It now seems well established that they did. ... Despite criticisms and refinements of my argument (1971) that all formal Maya discourse is in parallelistic couplets, I remain persuaded that the exceptions to this rule are rare enough that it has positive utility in working out the syntactic and orthographic problems of Colonial texts, and I suspect that the same may ultimately prove true of the Classic inscriptions as well. The form is almost the definition of native 'poetry' from the Rio Grande to Tierra del Fuego."

"Did the Classic Maya use couplet kennings? Couplet kennings or 'disfrazismos' are ubiquitous in Nahuatl poetry and in the supposedly prose texts of the Yucatecan Books [the Chilam Balam] as well."

"They are markedly rarer in the Popol Vuh, though they do occur. The device depends on the dialectic process of combining the elements of a dichotomy or other dyad to produce a third and esoteric meaning (e.g. rope and cord means war). I am inclined to think this particular form may have been introduced into Yucatan from Central Mexico and hence may not occur among the Classic Maya, but the evidence is insufficient for a strong supposition."

With respect to the *Popol Vuh*, Tedlock, in his notes on his translation (1996 edition), offers syntactical uses of "pairing of words or phrases that are partly the same and partly different." Tedlock points up the uses of dyads and couplets, used metonymically, and quatrains in a manner not entirely different from Anglo-Saxon alliterative poetry, and gives examples of each. He also gives instances where onomatopoeia is used. The lines from Book 11 quoted above would certainly qualify for the use of kenning, even if only available in a translation.

This clearly brings forward the use of "one, two ... three, seven, eight thousand" as a metaphor for something entirely different from the actual meaning of the words in use. In that the phrase clearly fits the manipulation of the 3x3 calculation board of the Maya, the suggestion that it was meant to stand for an enormous span of time would seem to be correct.

"Eight thousand" is used once more to signify a very large time span used near the end of Book 11, *"Then resounded eight thousand Katuns at the word of the first stone of grace, the first ornamented stone of grace."*

(2) A SURVEY OF THE WORLD

This second item is actually the opening page of Book 1 of the *Chilam Balam*, titled by the translators Ralph L. Roys as "The Ritual of the Four World-Quarters," and by Antonio Mediz Bolio as "The Book of the Lineages." Roys sees the present page as standing alone, and starts the translation of the following page as Book 2, under the title of "The Rise of Hunac Ceel to Power," which describes the migration of the Itza into the Yucatan. Bolio takes the present page to be part of the Itza history.

The page deals with the time of the "Survey of the World" -- the appearance of the Peratt Column and the attempts made by people to grasp the meaning of the phenomena. As I suggested earlier, the details of the "survey of the world" extend back to 10,900 BC.

The visual effects of the Peratt Column was a series of brilliant lines of electrons, passing over the Earth from north to south, and stationary. The lines would follow the Earth's magnetic field lines, and thus the lines rotated as the Earth rotated. In effect three or four of the surrounding streams of electrons would be seen above any location on Earth.

Beyond the Rivers

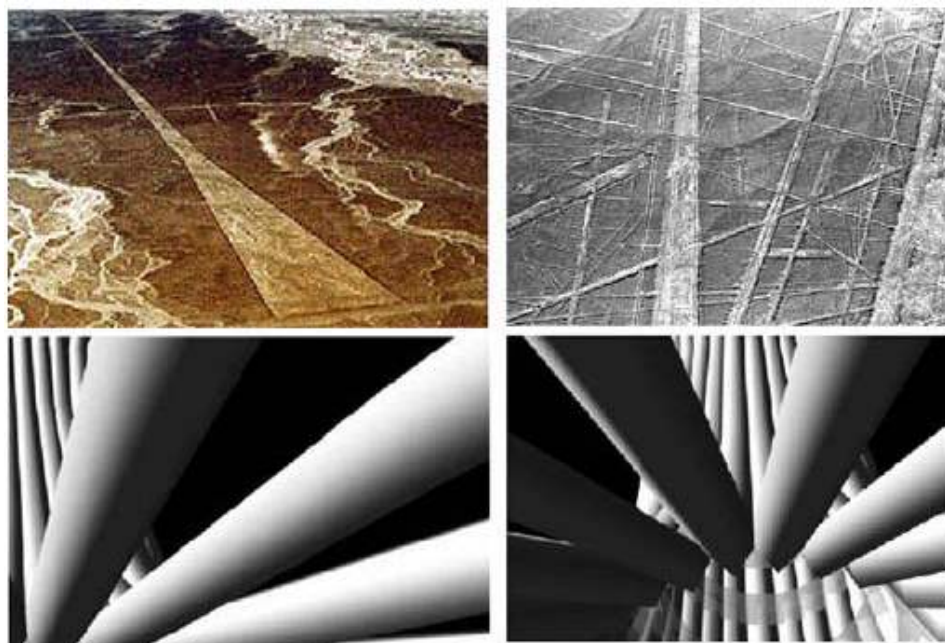
Roys starts the translation with a note that apparently the previous page is missing. So he starts in mid-sentence, as follows:

"... the first man [idol] of the Canul family. The white 'guaje', the 'ixculun' (and) the 'gumbo-limbo' [three tree species] are his little hut, ... The logwood tree is the hut [lean-to] of Yaxum, the first of the men of the Cauich family."

"The lord of the people of the south is the first of the men of the Noh ["South"] family. Ix-Kan-tacay is the name of the first of the men of the Puch family. They guard nine rivers; they guard nine mountains."

"Nine mountains," Roys suggests, is from "Bolonppel-uitz," which is, he writes, "probably a place-name in the south." But Bolio has, "Nine rivers guarded them."

Rather than guessing at what much of these texts mean, I will just propose the historic narrative, and see how close the texts come descriptively to the narrative. Let me thus propose that the three trees are the three ball plasmoids of the "great white opossum" in the far south. The logwood shelter is composed of the overlaid nearby lines of electrons closer at hand, in the south, where the streams of electrons contracted (pinched) before diverging to ride over the Earth. Peratt offers a convincing graphic of this, from the perspective of Peru at about 14 degrees south latitude which has all the looks of a lean-to. The nine rivers, I would propose, are the nine rings of the Absu which were seen from the Yucatan or other locations at 10 or 20 degrees latitude north of the equator which interfered with the clarity of the image of the plasmoids. South of the equator the plasmoids would be seen in much greater detail. The nine mountains I cannot place.



[Image: Nazca lines, aerial view and electron beams as seen from below. After Peratt, 2007. The view at 20 degrees north would certainly make this look like a lean-to.]

Bolio's translation, here rendered in English by Suzanne D. Fisher, is easier to read. Bolio reverses the subject and predicate of the sentence about the rivers.

Bolio writes:

"The Lord of the South is the root of the lineage of the great Uc. Xkantacay is his name. And it is the stock of the lineage of Ah Puch."

"Nine rivers guarded them. Nine mountains guarded them."

As the reader knows, there are no titles in the original, nor is there any punctuation. Roys sees the present page as standing alone, and starts the translation of the following page as Book 2. Book 2 is a long piece, mostly coherent except for two interruptions which describe migrations of the Itza into the Yucatan in the 9th or 10th century AD (which may have been the Toltecs). Hunac Ceel is a 12th century Itza ruler. Bolio, on the other hand, takes the present page to be part of the Itza history, but separates out the last page of the history of the Itza as dealing with a different topic, the fall of the Absu in 2349 BC (described as item 3 below).

I am making note of the context here because the page of the *Chilam Balam* under consideration stands out in three distinct ways from the "history of the Itza." First of all, if this description is part of the history of the Itza, it starts out far too early -- some 6000 years before the Itza arrive in Maya territory.

Second, the origin of a people is here placed in the south, in fact, beyond the nine rivers. The Itza came from the west, from the Valley of Mexico (as did the Toltecs).

Third, as I will quote further below, the first major task was a survey of the land, but this would be a land of mountains, as in the Guatemalan Peten region. The flatland of the Northern Yucatan was not occupied by humans until quite late, although certainly by Toltec and Itza times.

The Colored Bees

But first, before mention of the survey, there is an interruption in the text. It is a list of the directional colors and properties of the cardinal points -- east, north, west, and south, always in this order, and always assigned the colors red, white, black, and yellow, in order. In all cases in the *Chilam Balam* the directions and colors are assigned to four individual trees, except on this page, where the assignment is first to "flints" and other assorted wares. Two of the flints (red and white) are also associated with Bee Gods. From Roys:

"The red [east] flint stone is the stone of the red Mucencab [Bee God]. The red ceiba tree of abundance is his arbor which is set in the east. The red bullet-tree is their tree. The red zapote . . . The red-vine . . . Reddish are their yellow turkeys. Red toasted is their corn [maize]."

Bolio has something similar, except that he writes "sacred stone" for "stone" and where Roys has "is his arbor" Bolio translates "its Hidden Center," as if to suggest that the tree was not really there. The other flints (white, black, yellow) use a similar text (see below).

"Mucencab" is a Bee God. Mucencab is only mentioned in the first two paragraphs, and not again in the following two paragraphs about black and yellow flints. We have no idea what this Bee God represents. In the 500 years since the beginning of the 16th century AD, not a single Maya informant has managed to say anything coherent about Bee Gods.

The other three "flint texts" reads as follows. (The order of cardinal direction is here in the reverse of the listings in Book 10.)

"The white flint stone is their stone in the north. The white ceiba tree of abundance is the arbor of the white Mucencab [Bee God]. White-breasted are their turkeys. White Lima-beans are their Lima-beans. White corn is their corn."

"The black flint stone is their stone in the west. The black ceiba tree of abundance is their arbor. Black speckled corn is their corn. Black tipped camotes are their camotes. Black wild pigeons are their turkeys. Black /akab-chan/ is their green corn. Black beans are their beans. Black Lima-beans are their Lima-beans."

"The yellow flint stone is the stone of the south. The ceiba tree of abundance, the yellow ceiba tree of abundance, is their arbor. The yellow bullet-tree is their tree. (Colored like) the yellow bullet-tree are their camotes. (Colored like) the yellow bullet-tree are the wild pigeons which are their turkeys. Yellow green corn is their green corn. Yellow-backed are their beans."

[\[note 9\]](#)

I think the significance of this insertion of descriptions of the color-coded cardinal points is to delineate an inventory of the Earth. Considering all the other items inventoried for each of the colored flints (trees, fruits, birds, corn,

squash), these four paragraphs read more like geographic descriptions -- an inventory of the Earth. The colors of the cardinal directions were (probably) a late addition since 3100 BC, and were probably added to the source codexes as a helpful aid in identifying the directions. After the geography has been declared, the surveyor arrives.

The Survey

Roys writes:

"11 Ahau was the Katun when they carried (burdens) on their backs. Then the land-surveyor first came; this was Ah Ppizte [Measuring Man] who measured the leagues. Then there came the 'chacté' shrub for marking the leagues with their walking sticks."

"Then he came (to) Uac-hab-nal to pull the weeds along the leagues, when Mizcit Ahau came to sweep clean the leagues, when the land-surveyor came. These were long leagues that he measured."

Bolio has, not altogether different:

"With the 'Eleven Ahau Katun' appears the retinue of their servants."

"And Ah Ppisté [Measuring Man] began to come. This Ah Ppisté [Measuring Man] was the measure of the earth. And then came Chacté Abán, to prepare the measurings of land to be cultivated."

"And Uac Habnal came to mark the measurings with signs of the herb; while Miscit Ahau came to clean the marked out lands and Ah Ppipsul, the measurer, came, who measured wide areas."

Katun 11-Ahau is the name of a double-decade period which is understood by the Maya as starting all history, if all of history is always repeated every 13 Katuns. As a result, Katun 11-Ahau is also the complete period before history.

The names upon names should not worry the reader. Mesoamerican languages, like most American Indian languages are action oriented, not time based. If an action happens, it has to be attributed to an agent. Additionally, as Roys points out, frequently the names are puns.

I have made note of the sweepers who cleared the lines in the chapter "The Peratt Column." The sweepers will recur a few lines down as bees who swarm at Cuzumel.

"These were long leagues that he measured" and "who measured wide areas" both show that the survey was no small project. I would suggest that we are looking at a recollection of the brilliant stripes in the sky. To the later scribes of the Olmecs, and other peoples who came before the Maya, the recorded events suggested that the survey was done for humans, and possibly by humans, and was a necessary task before settlement of a land after a migration from the south, although I am only suggesting this by implication from the opening statement of this page, "the lord of the people of the south is the first of the men of the Noh family." It is thus not specifically said that anyone migrated. The *Popol Vuh*, however, will suggest a migration from the east.

The use of this information as the opening page of the *Chilam Balam* makes sense in its use at the beginning of the history of the later Itza migration. It localizes the information from remote antiquity to the time and conditions of AD 1000 in the Yucatan.

The *Popol Vuh* also has reference to a "*measuring, staking, and stretching the cord in the sky, [and] on the earth*" -- all accomplished before any creation activity at all is started.

The ending paragraph of Book 11, "The Ritual of the Angels" (above), also references the measuring of the land, although I think the wrong white stripe is referenced -- it equates the plasma stream in glow mode (from Saturn via Mars) with the four stripes seen earlier.

Next after the "survey" we have a division of the east, north, west, and south of the land of the Yucatan to well-known and established families. Bolio, for example, has:

"Then a spokesman was established at the head of the mat."

"Ix Noh Uc presides to the east. Ox Tocoymoo presides to the east. Ox Pauah Ek presides to the east. Ah Miz presides to the east."

Following the list of chiefs of the east, there are three more lines for the other cardinal directions. All of this is obviously an effort to make ancient history fit

contemporary facts. The Yucatan, a flat dry region, was not populated until 1000 BC to 300 BC (there are also suggestions of 2500 BC).

Interestingly, the *Popol Vuh* takes the same stance to the first humans, not only associating the first creation of people to this particular time of antiquity (although the *Popol Vuh*, probably in error, claims this is a time before light returned to Earth), but listing the four overhead streaks of electrons as the first created humans -- four brothers named "Jaguar Quitze," "Jaguar Night," "Not Right Now," and "Dark Jaguar." There is no question that the authors of the *Popol Vuh* have equated these first four fathers with the streaks in the sky. See the later chapter "The Popol Vuh."

Cozumel

The text about the families is followed by "directionally colored" bees. Roys has:

"The red wild bees are in the east. A large red blossom is their cup. The red Plumeria is their flower."

"The white wild bees are in the north. The white pachça is their flower. A large white blossom is their cup."

"The black wild bees are in the west. The black laurel flower is their flower. A large black blossom is their cup."

"The yellow wild bees are in the south. A large yellow blossom is their cup . . . is their flower."

These bees, as I mentioned earlier, are not the satellites of Saturn, tempting as it might be to simply assign them to the era of Saturn. They are distinguished from being satellites by their association with the cardinal directions. These bees are geographically distributed. Roys continues:

"Then they swarmed at Cecuzamil [Little Cozumel] in great numbers among the magueys [or "sweet things"] of the land, the calabash trees of the land, the ceiba trees of the land and the 'chulul' trees of the land."

Bolio has:

"When the multitude of the children of the bees multiplied itself, the small 'Cuzamil' was the flower of the honey; the mug of honey was the first apiary and the heart of the earth."

Let me at least point out that, as the bees were swarming, it could be presumed that they were seen to move south to Cozumel, or actually the plasmoids, here identified as the hive and as "the heart of the Earth." The "hearth of the Earth" will be identified securely as the three plasmoids of the south in the *Popol Vuh* (in a following chapter).

So, to complete a sensible image, imagine that the bees travel overhead along the four electron beams -- like the brooms of the Ley Line sweepers, or Mizcit Ahau who "came to sweep clean the leagues," or "Measuring Man" Ah Ppizte who came to "pull the weeds along the leagues."

Fuzzy, furry, moving shapes traveled south along the visible streaks in the sky. The shapes diminished in size as they reached the region above the South Pole, and came to a halt (probably) at the first ball plasmoid. The ball plasmoids had sprung into existence in response to the isolating layer of carbon dust in the Earth's stratosphere. The ball plasmoids might have looked like a hive or a swarm of bees. As seen through the shimmering and moving Absu, it would look as if the individual "bees" of the swarm continued to be actively in motion.

Worldwide the interpretations differed considerably. There is a progression starting with the dead herd animals painted by Cro-Magnons on the walls and ceilings of caves in Southwestern Europe between 30,000 to 10,000 BC. From the herds of dead animals in Europe, the extended concept 5000 years later in Europe, as well as in Western Asia and Northeastern Africa, is of the travel of the dead to a final destination in the far south -- often interpreted as a set of islands floating in a sea.

In Mesoamerica we have the same imagery in the skies, but here it is understood as bees traveling south along the beams of electrons. In the next paragraph these bees are converted into arrows or armies of archers.

Roys continues with:

"Kin Pauahtun [Kan Pauahtun, the wind-god of the south] was their priest. He commanded the numerous army which guarded Ah Hulneb [the Archer] at Tantun in Cozumel, (also) Ah Yax-ac [first turtle], [a] chinab [a handspan measure], and Kinich Kakmo [fire macaw]."

Roys has "chinab" with a leading capital. Bolio has something very similar:

"Kin Pauah was the great priest, the one who governed the army of the warriors and was the guardian of Ah Hulneb [the archer], on the altar of 'Cuzamil'; and of Ah Yax Ac-chinab [dwarf] and of Kinich Kakmo; [the sun-eyed fire macaw]."

This paragraph is, of course, about the three ball plasmoids. I am not buying "dwarf" as a designation of the second plasmoid. Peratt, in an illustration based on a reconstruction from extensive data, has the second plasmoid larger than the first (nearer) plasmoid. But the order may not be as I would have assumed.

Here Cozumel, or Cuzamil, an island off the east coast of the Yucatan, is equated with the southern ball plasmoid as an island rising out of the sea of the Absu, similar to how the Sumerians held the island of Dilmun (Bahrein) in the Persian Gulf to be the city of the Gods. Malta had a similar status, as did Crete. All four islands developed a funeral business in antiquity.

The "wind-god of the south" might be any vaporous formation (plasma) extending from the ball plasmoids (when they existed) or more likely the streams of electrons.

And who is the archer? In a footnote about the Archer and Cozumel, Roys writes:

"Ah Hulneb, the Archer, was one of the principal deities of Cozumel which was a center of pilgrimage not only from every part of Yucatan but from Tabasco as well."

I am more inclined to equate the Archer with the first (near) plasmoid which was the source of the lines of electrons shooting into the north sky. The arrows were likely dispatched from the south to the north. The sporadic interruption of the lines of electrons could make these look like arrows shooting north. It brings to mind the "crossed arrow" emblem of the North African goddess Neith, as well as the assembly of shield and spears known as the "War Stack" altar at Palenque.

Kinich Kakmo, the sun-eyed fire macaw, will be recognized as the name for the whole structure of Saturn as the body, its rings as its colorful feathers, and with Venus as the head. The problem here is that this text might simultaneously point to the earlier ball plasmoid after 10,900 BC and to Saturn after 4077 BC.

As listed above, the handspan might have been meant to represent the width of the third and largest plasmoid. A handspan subtends 2 or 3 degrees in the sky (a half degree per finger). At a distance of 425,000 miles (685,000 km) from earth, this would represent a very large object.

Of course there are a number of other instances in mythology where the southern ball plasmoids are referred to in the same breath that the northern Saturnian apparition is mentioned. The Japanese *Konjiki* starts with names for the three ball plasmoids (as "born" first) followed immediately with the names of two entities "born next from a thing that sprouted up like unto a reed-shoot."

The Mesoamerican *Popol Vuh*, despite its extensive anthropomorphizing, does the same, that is, it recognizes the simultaneous existence of the southern and the northern forms. And last, the standing stones at Carnac reiterate the same concept of spheres existing at both ends of the causeways.

(3) THE THIRD CREATION

I have quoted a first portion of the following in "The Day of the Dead," under the topic of "The Ten Suns." I have noted that this text describes the event of 2349 BC. As the most impressive event of the past it is perhaps not unexpected to find this description also on a separate page. It follows directly on a history of the Itza, and both Bolio and Roys have taken it to be such, but it has nothing to do with the Itzas. The beginning and end of the page are missing. The text below is from Bolio. Roys has a reading of the original texts which is radically different. The difference, I think, is that an attempt is made by Roys to integrate the action of this page into the more mundane activities of the history of the Itzas of the previous pages. [\[note 10\]](#)

"Our gods have grown!" their priests said (those from the Sun). And then days of the year were introduced."

"Behold abundant suns come,' they said. And the hoofs of the animals burned and the edge of the sea burned."

"This is the sea of bitterness!" they said."

"And the face of the sun was corroded, and its face became darkened and was put out."

"And then, above, they became frightened. 'It has burned up! Our god has died!' their priests said. "

"And they were beginning to think about making a picture of the figure of the sun, when the earth shook and they saw the moon."

The Calendar and the Moon

All of this I have addressed earlier, in the chapter "The Career of Jupiter." The page obviously relates to the event of 2349 BC, with the references to the "growth" of the Sun (what was seen of the primary plasmoid in the east), the nine secondary plasmoids seen above Central America and later in East Asia (abundant suns), the introduction of a new calendar (but not the Haab), the disappearance of the Sun as the axis of the Earth tilted, the burning edge of the "sea" (the Absu), the radiant heat felt on Earth, and the first appearance of the Moon, following an Earth shock.

"And then came the Beetle gods, the dishonest ones, those who put sin among us, those who were the mud of the earth. ('It was Ix-Tziu-nene who introduced sin among us, the slaves of the land when he came.')"

The "Beetle Gods" must be equivalent to the "swarming of butterflies" mentioned in Book 10 of the *Chilam Balam* (also with reference to 2349 BC). This is probably portions of the dust of the Absu coalescing into larger entities and moving about or falling to Earth. Roys suggests that "Ix-Tziu-nene" is a woman ("Ix") of the "Tziu" family, but offers that on the basis that this page is a continuation of the history of the Itza of the previous page. He also notes that "nene" translates as "mirror."

This last makes it look more like a reference to the Moon, which is feminine among the Maya. Thus it might be suggested that we are here dealing with a celestial being (or apparition) and not with a lady of the Tziu family. Ix-Tziu-nene is probably the Moon. The Moon, in fact, has been the only Goddess ever to appear among the Maya (although other minor goddesses were added after the invasion). "Ix" (a feminine prefix) would thus be appropriate, despite the fact that the Moon is here referred to as "he." The "mirror" would also be appropriate.

The "sin," I need not point out again, is plasma in glow mode, or long distance lightning among the rings. Further below this is equated with arrows.

"When they came, the Katun was ending. 'The Cursed Katun' was that which was ordered. 'Speak carefully, thus are the gods of this land!'"

"When the time of the next Katun commenced, and the Katun in which the dishonest ones were brought ended, the multitude of their warriors was seen. And they began to kill them. And they erected gallows so they would die."

I'll address the "gallows" and the "warriors" further below.

The Question of Dates

The question of dates for the 2349 BC event remains unresolved. As I pointed out earlier, the Maya source for Book 10 moved the event to a Katun 9-Ahau for the sake of establishing that the day of the "third creation" had fallen on a "Day of Kan" which fell on an equivalent Gregorian date of July 26th. We would hope that the present page would clarify this, but it does not. Of some interest is the fact that these events seem to have happened near the end of a Katun -- if that can be read from the text. In standard chronology, the events of 2349 BC should have been experienced near the end of Katun 4-Ahau, 1.19.0.0.0 (using the accepted method of retrocalculation). But the next Katun which is listed (see below) is 11-Ahau, 2.2.0.0.0, which could only follow Katun 13-Ahau. This is 80 years after Katun 4-Ahau. The problem with the date of the 2349 BC event is addressed in the previous chapter on Book 10 of the *Chilam Balam*.

The "multitude of warriors" must be celestial, and represent some aspect of the falling Absu. The "killing" repeats the action of parallel legends in India, the Levant, and Egypt. Killing was assumed on the basis of the amount of "blood" seen in the sky.

The Gallows

The "gallows" is what Book 10 describes as the "timber planted at the crossroads" -- the plume of plasma suddenly developing at the South Pole of Earth and extending probably some 20,000 miles (30,000 km) into the part of the Earth's magnetosphere away from the Sun. The bend in this, which would be seen rotating nightly as the view of the sky changed because of the rotation of the Earth, would be enough to mark it as a gallows.

"And Ox-halal-chan began to shoot them with arrows. And the gods of the country began to be evoked. And their blood spilled and they were seized by the Lords of the Deer and then they were astonished and their war ended"

Note, first of all, that warfare in Mesoamerica did not use bows and arrows. Bows were only used by hunters (and in executions by the Toltecs). This reiterates the fact that we are looking at lightning across the remaining rings of the Absu. The same is noted in Chinese legend -- that the nine additional suns were shot down with arrows.

Roys translates Ox-halal-chan as "Chan of the three arrows." A description seems to continue a few sentences further below. More blood is spilled there. And notice that the "Lords of the Deer" are invoked here as agents, which could refer to my earlier suggestion that Uuc-yol-zip should be identified as the Moon.

"The Eleventh Ahau Katun is seated on his mat, sits on his throne. There his voice is raised, there his nobility manifests. The face of their god emits rays."

"Leaves come down from the sky, flowered arches come down from the sky. Celestial is their perfume. Music sounds, the tambourines announce the Eleventh Ahau. He enters at dusk and happily covers the sun with his canopy, the sun that there is in Sulim chan [wet serpent], the sun in Chikinputun [Chakanputun, Sabana-de-chiles]. Trees will be eaten, stones will be eaten, all sustenance will be lost within the Eleventh Ahau Katun."

This seems to continue the exploits of Ox-halal-chan, "Chan of the three arrows." The leaves and "flowered arches" coming down from the sky, plus the perfumed air (the smell of alcohol in the Eastern Mediterranean region), only suggest a continued disassembly of the rings of the Absu. Music sounding like tambourines seems like the constant crackle of particulate matter from the Absu falling into and exploding in the atmosphere or ionosphere. This, by the way, is the only mention of something akin to cometary showers, but of course it was only heard at latitudes close to the equator.

Covering the Sun, now traveling in the "wet serpent" of the remaining ring of the Absu, with a canopy of nightfall is an interesting notion. Before this time the night would always have been partially lighted by the Sun-lit Absu. After 2349 BC true darkness was first experienced. Since "he" enters at dusk, "he" is likely a planet. I would suggest Jupiter, but the text could be referring to the Moon.

The quotation ends, typically, with warnings of dire starvation conditions.

Endnotes

Note 1--

Estimates are that the cup and tail marks extend from remote times to about 20,000 years before the present. Thus the classical Venus figurines of the European Gravettian interrupt the series of cup and tail marks. Since the figurines reappear in the Magdalenian period, starting about 17,000 years ago (although they now look elongated and distorted), it could be suggested that for an extended period of time, perhaps something on the order of 10,000 years, Saturn's orbit took it away from periodically being close enough to Earth to have the Saturnian planets observed individually.

The text of the *Chilam Balam* does not clearly define two differing periods and two differing "looks" for Venus figurines or the Saturnian stack (in the Gravettian and the Magdalenian). It is thus possible that the Olmec record only starts at this intermediate period after the Gravettian.

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Note 2--

The number "7" does have metaphorical meaning in signifying the filling up of a counting board register, as described later in the endnotes. But since "7" is here used by itself and is not presented as part of some compound poetic trope, I think it exactly represents seven occurrences.

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Note 3--

The intervals found from the plot of fractional global radio-carbon since 50,000 bp, shown below, suggests 500- to 4000-year intervals between electrical contacts with Saturn. From these a range of orbital parameters can be derived from Kepler's third law, $(T1/T2)^2 = (R1/R2)^3$, by setting T1 equal to one year (for Earth) and setting R1 equal to one AU (for Earth). The formula then reduces to finding the cube root of the square of the period.

Period and orbital radius for Saturn in the Paleolithic

within system s	period	orbit radius	fraction	years w
	(years)	(AU)	of period	Solar S
	4000 years	252 AU	.1984	793 yr
	2000	160	.3125	625
	1000	100	.5000	500
	500	63	.7936	397

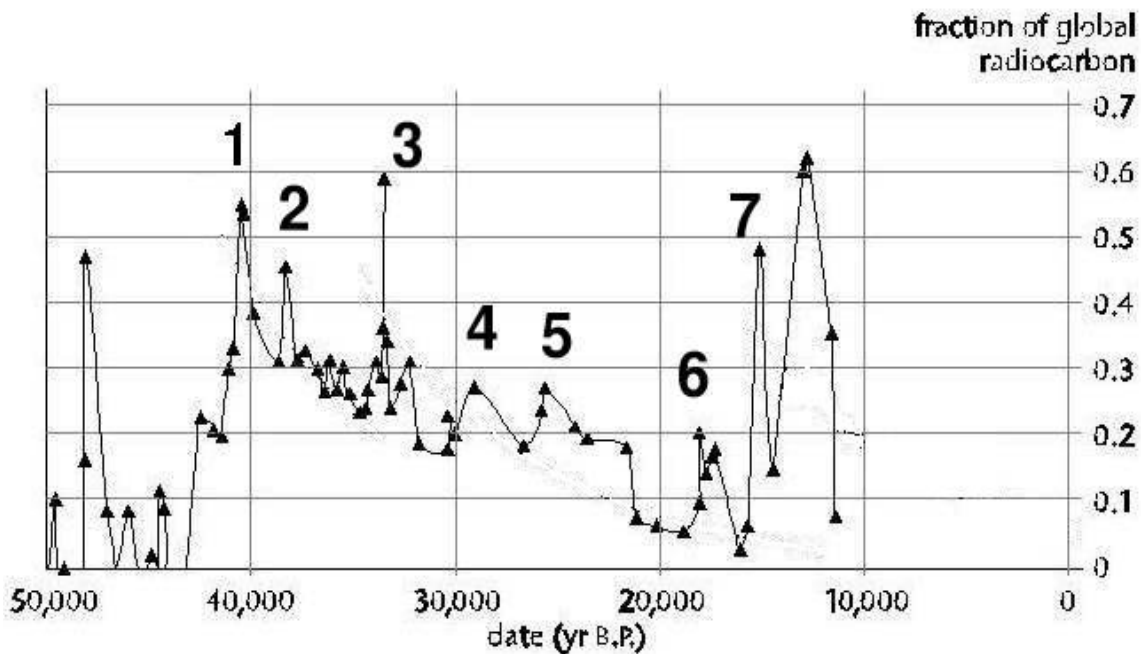
The "fraction" of the total orbital period is, as before, determined by $(2\pi \cdot 100 \text{ AU} / 2) / (2\pi \cdot \{\text{radius}\} \cdot \text{AU})$. From this the time in the Solar System is estimated from $\{\text{fraction}\} \cdot \{\text{period}\}$. This is a very rough estimate. The actual time that Saturn would be seen by humans would only be a small portion of the "years within the Solar System" -- the time that Saturn spent within a few AU of the Sun.

Of the values for a period listed above, 4000 year seems like the most likely, if the time span is 41,000 BC to about 12,000 BC, which is 29,000 years. Dividing 29,000 by 7 results in a period of 4142 years.

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Note 4--

Although the text might imply that Saturn appeared regularly, the graph of changes in the Carbon-14 level over the last 50,000 years holds otherwise.



[Image: Fractional global radio-carbon since 50,000 bp.
After Firestone; from A.H.L. Voelker (1998).]

The peaks of 41,000 bp (marked as #1), 34,000 bp (#3), and 13,000 bp (#7, the last peak) produced not only Carbon-14 spikes, but also radioactive residue and magnetic anomalies. All the peaks of Carbon-14 spikes suggest interactions with Saturn. At 41,000 bp (#1), the megafauna of Australia disappeared, and a magnetic anomaly was experienced (as pointed out in Chapter 9, "Events of the Younger Dryas"). At 13,000 (12,900) bp (#7) the megafauna of North America disappeared, followed soon by similar losses everywhere else. I did not mark 12,900 BC (the last peak) as number 8, for it was apparently not distinguished by the Olmecs. This last peak became the starting point for a telling of the darkness, which eventually resulted in creation. So peak #8 was not one of the series of seven failed attempts by God to come into being.

Since the peak previous to 41,000 bp (#1) is nearly 8,000 years earlier, the cataclysmic event of 41,000 bp may mark the start of record keeping. But 34,000 bp (#3) may be more meaningful. It represents one of the two largest cataclysms, but at an unknown location. And it is also followed soon (29,000 bp, #4) with the first decorated caves in Southern France and Northern Spain. It also matches the dates of the start of the first lithic blade industry (the Châtelperronian), much more advanced than the 300,000-year-old Mousterian tools of the Neanderthals and earliest Cro-Magnon. That is true in Southwestern

Europe. A Mousterian lithic industry existed in the Americas also.

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Note 5--

The dates of 8000 to 7000 BC for the first appearance of maize are from stratigraphic estimates made in the 1960s and 1970s. Carbon-14 dates for maize reach only to 3500 BC. Plant domestication worldwide first occurs independently in about 8000 BC in China (millet) and in Anatolia (wheat), where it is noted as "in development" as early as 9000 BC. But then, the Levant and Anatolia are better studied archaeologically than most other areas of the world.

Both the domestication of grains and the domestication of sheep and goats in the Levant might very well have been hedges against starvation during the dark and cold period of the Younger Dryas. But with the improved (if displaced) climate after 9000 BC, the lure of scavenging and hunting returned. Hunting is a lot less work than agriculture, and more fun if there is game. Sheep herding spread west into Greece, Italy, and Spain -- dry regions with little game. In Italy and Spain the cultivation of grains did not take hold until much later.

The domestication of a variety of plants probably took place during the Younger Dryas in Southeast Asia, West Africa, Ethiopia, the Andes, and the Amazon, but in none of these places is it clearly noted in the archaeological record until after 3100 BC, at which time agriculture might have been the only choice for a livelihood.

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Note 6--

Of the seven stones, only for four is it actually remarked that they received their divinity. The first and second and the fourth and fifth.

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Note 7--

The oldest Olmec archaeological site is along the Pacific coast. This suggests that the Olmecs abandoned the coast of the Caribbean after the flood of 3147 BC, and settled on the Pacific. The Pacific site of Monte Alto, an official ceremonial center established circa 2000 BC, was abandoned by 1440 or earlier. The abandonment was likely the result of the Pacific ocean impact of 1492 BC,

but may also have been a reaction to the worldwide climatic downturn. The next ceremonial center was established along the Caribbean again, at San Lorenzo, in 1367 BC. As if there was still a lingering apprehension of immense ocean tides, the San Lorenzo ceremonial center was located far from the ocean and high up on a manmade mound which would have taken massive efforts to construct.

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Note 8--

Let me introduce the methods of computation used by Mesoamerica for counting and calculations. These are based on the binary manipulation of numbers in base-5 and base-20.

Nexus Tzacol (Reuben McDavid) of Project Ahau, originally at fortunecity.com/tattooine/replicant/29/, claims that, at the time of the Spanish invasion, a 3x3 checkerboard was in use by the Maya to do calculations. McDavid, however, gives no indication of its operation.

A 3x3 board certainly is a very small space. But it becomes believable when it is realized that the calculation in effect replicate the operation of an abacus, a calculating instrument based on base-5 and base-10. But unlike an abacus, the special rules for moving tokens from one square to another of the 3x3 board are very simple.

I will outline addition of base-5 and base-20 numbers on this 3x3 checkerboard, using only one or two markers per square. Subtraction would be similar.

1	2	4
$\sqrt{5}$	$\sqrt{10}$	$\sqrt{20}$
20	40	80
$\sqrt{100}$	$\sqrt{200}$	$\sqrt{400}$
400	800	1600
$\sqrt{2000}$	$\sqrt{4000}$	$\sqrt{8000}$

[Image: Maya 3x3 counting board. Main area is used for addition, inset areas accumulate counts. Values for token positions are shown. Illustration by J. Cook.]

Each row of the 3x3 board has to be augmented with a second space (perhaps as the lower part of any row), where the sums reached with calculations of the main space can accumulate. The main space of a row is thus used for calculations; the second space accumulates values which can be bumped to the next register (the next row of the 3x3 board) -- as needed.

Let me now introduce the calculation area of the top row of the board. Here we are counting in units of 1, 2, 3, 4, and 5 -- except that on reaching 5 we will advance the count to the accumulation area of the same row, which will count 5's.

The spaces of the calculation area of the first row of the 3x3 board can have a count value, left to right, of 1, 2, and 4. The tokens thus actually represent a binary count. I point this out because it will also hold for all greater values of numbers -- 5s, 20s, 100s, 400s, and 2000s.

The top level of the first row thus can represent 1, 2, 3 (which is 1 plus 2), and 4. I'll use parenthesis () for the tokens, square brackets [] for the multipliers, and curly brackets {} for the values. The placed tokens thus are, in order:

(1 0 0)	value of {1}
(0 1 0)	value of {2}
(1 1 0)	value of {3}
(0 0 1)	value of {4}
(1 0 1)	value of {5}

As a binary representation we could also represent the values of five (1 0 1), six (0 1 1), and 7 (1 1 1), but the values higher than five are of no interest in these calculations.

The rules for addition are simple: When any square holds two tokens, they are replaced by one token on the next square to the right -- which has double the value of the previous square. The operation is entirely similar to abacus usage: tokens can accumulate at a particular square, and be moved (carried to a higher value) when convenient.

The one additional rule to be invoked is that when five (1 0 1) is reached in the calculation space of a row, these tokens are removed, and one token is placed in the first square of the accumulation space of a row, which counts accumulated 5s. We could call this the 1-0-1 rule.

So (1 0 1) becomes (0 0 0) - units (upper level)
(1 0 0) - fives (lower level)

The 5s register (the accumulation space of the top row) accumulates value in the same manner: anytime there are two tokens on a square, they are replaced by a single token in the next (right) square. The 5s register thus counts 1-five, 2-fives, and 4-fives. But it can also hold values of 5-fives, 6-fives, and 7-fives -- to be moved as convenient.

Recognize that the 4-fives count (the third square) has a value of 20, which is the next higher value in Maya enumeration.

There is no 1-0-1 rule for the accumulation space of a row. When a value of 20 is reached (4-fives -- which is one token in the third space) it can be moved to a next row of the 3x3 board, which will count 20s. So far we have:

Multipliers of each row:

row 1 calculation:	[1 2 4] -- units, valued as {1 2 4}
row 1 accumulation:	[1 2 4] -- 5s, valued as {5 10 20}

row 2 calculation: [1 2 4] -- 20s, valued as {20 40 80}

Notice that the third line above, the 20s, which is the calculation space of the second row, will not progress in an orderly manner unless we again invoke the 1-0-1 rule. So, when five of the 20s (1 0 1) is reached, {20 0 80}, the tokens are removed and replaced with a token in the calculation register of the next row, which counts 100s.

Now we have:

```
first row:
  upper [1 2 4] -- units, valued as {1 2 4} units (1-0-1 rule)
  lower [1 2 4] -- 5s, valued as {5 10 20} units
second row:
  upper [1 2 4] -- 20s, valued as {20 40 80} units (1-0-1 rule)
  lower [1 2 4] -- 100s, valued as {100 200 400} units
```

And adding the third set of counting squares:

```
third row:
  upper [1 2 4] -- 400s, valued as {400 800 1600} units (1-0-1 rule)
  lower [1 2 4] -- 2000s, valued as {2000 4000 8000} units
```

Am I on the right track? After developing this 3x3 addition method, I checked back with Nexus Tzacol's website, and ran into a quotation of Bishop Landa from *Relacion de las Cosas de Yucatan* (AD 1590), which reads:

"Their counting is 5 by 5 until 20 and 20 by 20 until 100, and 100 by 100 until 400, and 400 by 400 until 8,000, and this count was used for the cocoa trading. ... They count on the ground."

Georges Ifrah, in *The Universal History of Numbers* (2000), develops a very similar process using the dot and line notation in a column, where place notation is determined by vertical position. This is identical to the notation used universally among the stelae of the Maya. He notes that the assignment of powers of 20 (the base-20 place notation) was interrupted at the third level, where only 360 units were counted (18 times 20), rather than 400 units (20 times 20), and questions why this was so. Ifrah here confuses counting with the

enumeration of the Long Count calendar. Ifrah points out that the fourth place in the place notation would thus have had a value of 20 times 360, or 7200 units. But Landa pointed out that the Maya counted to a value of 8000.

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Note 9--

In a section of Book 10 which is clearly about Saturn, I identify the Bee Gods as the satellites of Saturn. It is little wonder that neither the authors of the *Chilam Balam* nor anyone else had managed to figure this out, for an enormous amount of time had passed, and the identity of the Bee Gods, who never did anything except buzz around the "hive," had been totally forgotten.

However, I do not think that the singular Bee God invoked here can be identified as a satellite of Saturn since only two Bee Gods are mentioned, one of which is in the north and may represent the terminal globe (Saturn) in the north. A bee in the east I simply cannot identify. It is possible that the south and west bees were simply forgotten in this enumeration, and that additional bees should have been part of the directional inventory which is being listed here.

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Note 10--

The translation by Roys is as follows:

. . . when our rulers increased in numbers, according to the words of their priest to them. Then they introduced the drought. That which came was a drought, according to their words, when the hoofs [of the animals] burned, when the seashore burned, a sea of misery.

So it was said on high, so it was said. Then the face of the sun was eaten; [4] then the face of the sun was darkened; then its face was extinguished.

They were terrified on high, when it burned at the word of their priest to them, when the word of our ruler was fulfilled at the word of their priest to them. Then began the idea of painting the exterior of the sun. [5] When they heard of that, they saw the moon.

Then came the rulers of the land. It was Ix-Tziu-nene [6] who introduced sin to us, the slaves of the land, [7] when he came. Then the law [8] of the

Katun, the divination of the Katun shall be fulfilled. When he was brought, what was your command, you, the rulers of the land?

Then the law of another Katun was introduced, at the end of the Katun when Ix-Tziu-nene was brought. Whereupon a numerous army was seen, and they began to be killed. Then a thing of terror was constructed, a gallows for their death.

Now began the archery [9] of Ox-halal Chan. [10] Then the rulers of the land were called. Their blood flowed, and it was taken by the archers. [11] They were terrified . . . the time when the Katun ended for them . .

Roy's Footnotes:

4 -- "During lunar eclipses ... They say that the moon is dying, or that it is being bitten by a certain kind of ant (Aguilar 1921, p. 204). A similar belief was held of solar eclipses.

5 -- An alternative translation would be: "They began to imagine the reverse side of the sun."

6 -- Tziu is a family name, and /nen/ means mirror. Here it may be feminine.

7 -- /u mun nal cab/ might also mean: "the tender green corn of the land."

8 -- /Than/ has many meanings in Maya. The /than/ of the Katun is interpreted as "ordenansas" by the Kaua MS, p. 171 (Gates Reproduction).

9 -- Maya, /chulul/. This word has a number of meanings. In the Maya texts it usually signifies either a bow or the chulul-tree from which bows were made (/Apoplanesia paniculata/ Presl.)

10 -- Literally, Chan of the three arrows. Chan is a common family name.

11 -- Maya, /ah-cehob/. The term implies hunters who use the bow and arrow rather than warriors. Ah Cehob could also mean the men of the Ceh family.

[\[return to text\]](#)

Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.017+ and deg=57.2+; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Chapter 32: Olmec Site Alignments.

\$Revision: 42.4 \$ (olmec.php)

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Associated data file, [\["Mesoamerican Site Alignments"\]](#).

This continues the investigation into the Mesoamerican calendar started in a previous chapter. My main purpose originally was to check site alignments among early Olmec sites and locations in the Valley of Mexico. I wanted to see if the earlier inclination of the Earth's axis could be detected from solstitial alignments. But I soon realized that although there were many sunset alignments repeated from site to site, there were no solstitial alignments. What could be inferred from some of the later alignments which were found was the suggestion of a religious crisis experienced by the people of Mesoamerica in the 7th century BC. This is similar to what happened elsewhere in the world at the same time.

"The earth is round, like an orange."

-- José Arcadio Buendía, in Gabriel García
Márquez, *One Hundred Years of Solitude* (1967)

A crisis of the Sun in 685 BC

After writing most of the main text up to this point including Appendix A, "Notes on Chronology," and Appendix B, "The Celestial Mechanics," I started to look at the ceremonial centers used in antiquity by the Olmecs of Veracruz and the people of the Valley of Mexico. I wanted to verify the solstitial site alignments which Vincent H. Malmstrom, writing in *Cycles of the Sun, Mysteries of the Moon* (1979), had suggested existed for sites from Guatemala to Mexico. The thinking was, if some of these sites originated before 685 BC,

then certainly there would be solstitial sunrise and sunset alignments at an angle of about 32 degrees north of the east-west cardinal direction, which would have been true if the Earth's axis were inclined at 30 degrees rather than 23.5 degrees. With the axis of the Earth aligned at 23.5 degrees to the normal of the orbital plane, this angle would be about 24 degrees. I looked at 15 sites, but found only one solstitial alignment -- in the current era. [\[note 1\]](#)

Malmstrom's book is a vast resource, but it contains errors in the promotion of a particular idea. Malmstrom's idea is that the 260-day calendar (called the Tzolkin) was first established at Izapa, where the Sun overpasses the site on August 13. It does not; I will discuss this further below.

Malmstrom thus points out "August 13" alignment at other sites, although most are for August 12, and many are confused with alignments for the date of April 19th. But August 12 alignments were certainly found.

But what I found in addition, were alignments to the setting (or rising) zenithal sun for six additional dates for almost all the sites, at some sites selected for the condition of a 30-degree axial inclination, at other sites for 23.5 degrees. Only two sites (**Cuicuilco** and **Tlapacoya**) mixed alignment under different axial conditions. All the site alignments pointed to giant mountains and the largest volcanoes in this region of Mexico, often hundreds of miles away.

I considered 11 volcanoes and large mountains. The exceptions were the use of an alignment defined by the major axis of the site itself (two locations for which I had data). After consideration of other sources from the Eastern Mediterranean, I was able to tie these dates to the catastrophic events of 3114 BC (August 12), 2349 BC (September 8), 1492 BC (April 19), 747 BC (February 28), and 685 BC (four dates).

The dates turn out to represent the end of the "Era of the Gods" in 3114 BC (a retrocalculated date, the actual is 3147 BC), the removal of the Absu in 2349 BC and the so-called flood of Noah) as the culmination of the Pleiades three days later, the Earth shocks of 1492 BC and of 747 BC, plus a distribution of 4 dates which can be assigned to the plasmoid from Jupiter in 685 BC.

The initiation and arrival of the plasmoid represents a series of events which seemed to have caused some confusion among the people of Central Mexico. There is little agreement on *which date* or which event constituted the end of the era in 685 BC. The four dates are used in a nearly equal measure. It might also

be suggested, consonant with the philosophy of Mesoamerica, that an era did not end at all in 685 BC.

Considering that there are 365 days in the calendar year, and that the Sun rises and sets on the same horizon location twice each year, there are still some 182 days, and 182 locations along the horizon, which could have been selected. To have alignments consistently show up mostly on 4 days only (plus three for 685 BC), is not a random distribution. Alignments for matching calendar dates vary at most by only 1/3rd of a degree between calculated and observed values from site to site. Thus, for almost all of the ceremonial sites, only 4 horizon locations were selected from among 182 possibilities.

It is also clear that almost all sites picked either to align their important "era-ending dates" to an axial inclination of 30 degrees or an axial inclination of 23.5 degrees. Only a few sites mixed alignment for different axial conditions as convenient to the mountains or volcanoes which could be used. At **La Venta**, which was in use by 685 BC, we see the effort to change the major mountain alignment corresponding to a sunset for February 28 for an axial inclination of 30 degrees, to a new value for an axial inclination of 23.5 degrees by rebuilding the site with its axis aligned 8 degrees west of north. The perpendicular to the new site axis points to the new sunset location for February 28, 747 BC.

Additionally, all the Olmec ceremonial centers built after 1400 and 1200 BC were oriented so that the Sun would travel directly over the site and then set at a prominent mountain twice per year. These alignments were selected as a signature for the site location: having the sun set in a volcano on the day it would pass directly overhead at the site, or signaling some important event of the past, like the date (actually, the horizon location) of the end of a previous era. Both of these are obvious from an inspection of alignments between the sites and mountains for all the Mesoamerican ceremonial centers which I looked at.

I originally looked for solstitial alignments based on the work of Vincent H. Malmstrom, who, in *Cycles of the Sun, Mysteries of the Moon* (1997), had set out to demonstrate solar alignments of ceremonial centers of Central Mexico. The data collected by Malmstrom was meant to show both solstice alignments and "August 13" alignments (where the Sun set on August 13th).

First, let me present some comments about the apparent need for these orientations, as suggested by Malmstrom. He suggests, curiously, that the alignments arose from a need to "calibrate the calendar."

I don't think so. It is just unlikely that giant structures needed to be built to demonstrate over and over again where along the horizon the Sun set in mid-summer. The calendar didn't need calibrating; the Tzolkin calendar just continued to toll off days, one after another, as it had for thousands of years. Two sticks in the ground would demonstrate where the Sun set at the solstice. Additionally, the location along the horizon where the sun set at the solstice of summer (or winter) is the most difficult to pinpoint among all the possible locations where the sun might set throughout the year.

What I think should be inferred instead from the sunset and sunrise alignments is that the people of Mesoamerica were attempting to control the Sun's proper course, perhaps since the earliest times, but especially after 1492 BC when it looked like the world had come to an end, causing many long years of a deeply overcast sky, and the length of the year had changed. When the overcast skies cleared, 20 years after 1492 BC, it was noted that, for various critical days in the year, the Sun again set on the proper days of the Tzolkin calendar -- as if the Tzolkin had regulated the sunsets -- even though the solstice sunset had relocated and the year had lengthened. No one paid attention to the location of the solstice sunset or the length of the year.

We have to realize that the ceremonial centers of Mesoamerica -- all the sculptures and murals, all the stelae and dedicatory objects -- deal almost exclusively with religion and nothing else. To invoke kings for the Olmecs, or conquests for **Teotihuacan** cannot be adequately supported. Certainly we see armed men among the depictions, and later tribes actively attempting to control other people by force, but the concepts of kingly leaders are late concepts among the Maya and Aztecs. The leaders were priests who were a privileged elite. The emperor of the Aztecs was known as the "speaker" -- he talked to the Gods on behalf of the people. **Teotihuacan** never had a standing army. The Classical Era Maya had neither standing armies nor a police force.

The armed men, and the wars among the Maya, were used to capture sacrificial victims, for blood was needed to maintain control of the Gods and to sustain creation. Armed men were also used, no doubt, to protect trade expeditions. Trade, initially used to support the priestly elite and the ceremonial centers, was extensive and would soon have supported independent traders as a class. Of course what we know of trade are only the objects which did not degrade with time -- ceramics and stone. But what obviously fostered trade was the enormous surpluses of agricultural products, the same economic force which supported the ceremonial centers.

It is thus also likely that the alignments were used to pinpoint the start of an agricultural year -- a New Year celebration -- against the rotating calendars. This can be seen in the activities at the Maya center of **Edzna** where the celebration of New Year was determined for all of the Maya centers of the Yucatan, by selecting the zenithal passage of the Sun as the significant date. More on this below.

A New Year's Day in late summer, anywhere in the region, would divide the agricultural year into the two planting seasons, the maize crop planted in spring was harvested in early summer, and the crop planted in late summer was harvested in fall. The overhead (zenithal) passage of the Sun would happen in early spring, and again in late summer at all locations in the region.

What was much more important was to control the path of the Sun, as a sign that the current creation of the world was being maintained by the shamans, by the continued use of the Tzolkin calendar, and by the use of the proper location of ceremonial centers. In a fashion typical of well-documented later Mesoamerican philosophical thinking, mankind was responsible for this, and the ceremonial sites implemented the control over the current creation. This is so entirely different from the attitudes toward the Gods which developed in the Mediterranean region, as to be nearly incomprehensible to Westerners.

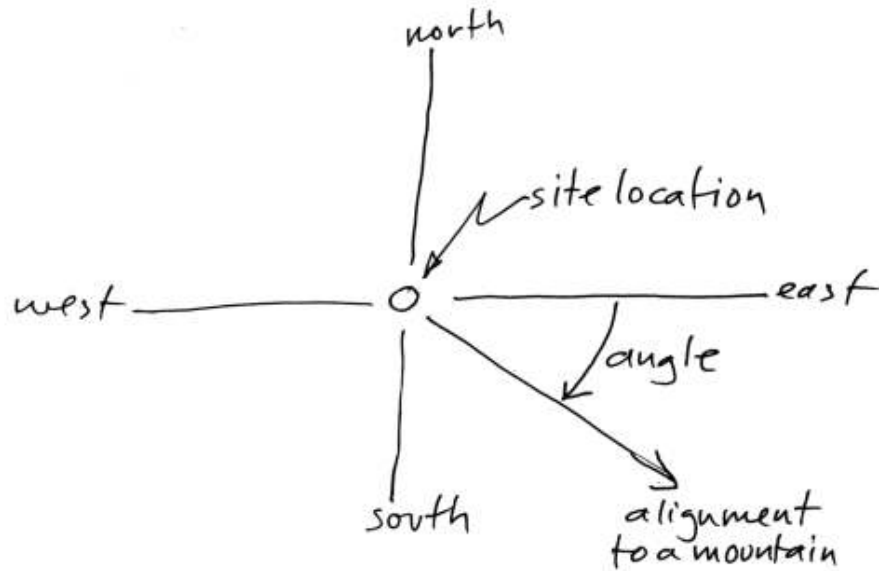
It should be realized that the Sun was never a God in Mesoamerica, despite what archaeologists and anthropologists might otherwise suggest. References to a Sun-God will inevitably be references to Jupiter, the Midnight Sun. The Sun did not move irregularly; the planetary Gods did. The Sun always looked the same; the planetary Gods trailed feathers, as Venus did, or donned a tri-lobed headdress and took a body shape of an opened crocodile jaw, as Jupiter did, cruised close to Earth in an attempt to destroy creation, as Mars did, or brought flowers to Earth, as Mercury did -- all experienced as late as the 8th and 7th century BC. The Sun was just an object, a part of nature like the wind and the rain, although created by the Gods. The only extant "creation myth" that has come down to us, the *Popol Vuh*, is clear about this.

Control of the Sun was achieved by anchoring its setting (or rising) at some date to a landmark mountain or volcano, sighted from a central point at a ceremonial center or a mountain-like structure at the ceremonial center. It gave the ceremonial center power over the Sun, and the Sun in reciprocity bestowed benefits to the ceremonial center. The benefits, of course, were prosperity, rain in season, large crop yields, and many children. What else would people ever

want? ("Bishop Landa says that the aim and object of all Maya ceremonies were to secure three things only: Health, life, and sustenance; modest enough requests to ask of any faith." -- Morley)

I suggest, therefore, that the people of Mesoamerica had developed a strong interest in controlling the stability of the current creation -- at least since 1440 BC, if not earlier -- as expressed in the sunset alignments of the ceremonial centers. Building huge structures and siting ceremonial centers to alignments with distant mountains makes little sense if this effort was meant for keeping time or adjusting calendars. To understand the ceremonial centers as a means of controlling the path of the Sun, and additionally reaping agricultural and social benefits, makes much more sense, even though it looks like insane magic to us. I can think of no other reason why pyramids and platforms had to be built over and over again at every location where people concentrated in Mesoamerica. There are thousands of pyramids. When the Sun changed its path in the 7th century BC, the return to stability proved the efficacy of the Tzolkin calendar as well as the ceremonial centers. [\[note 2\]](#)

Sighting the rising or setting of the Sun along the horizon is a topological solution to tracking and controlling the doings of the Sun. The Olmecs were certainly correct to pick this solution after 1440 BC, and were vindicated in 747 BC when the Earth's axis again spun through a circle, and the length of the year changed, and again after another Earth shock in 686 BC and a passing plasmoid in 685 BC. After each of these disturbances the Sun quickly returned to its correct setting location -- but of course not on the same date of an equivalent Gregorian calendar. But the calendar date did not matter. It was the sunset location that was important.



[Image: Legend used for alignments. Plan view. Illustration by J. Cook.]

With this the shamans of the Olmecs would repeatedly demonstrate that they indeed did have control over the Sun, for the location of the sunset of an overhead (zenithal) passage of the Sun remained virtually the same even when the orbit of the Earth changed and the year changed (as in 1492 BC and 747 BC), or the seasons fell into disorder (as after 685 BC) -- or, at least, so they claimed. A number of claims of the efficacy of the Tzolkin calendar show up in Book 10 of the *Chilam Balam*, which I have pointed out earlier.

The Changes after 685 BC

But then, unlike the changes which had happened in 1492 BC and 747 BC, something different happened. In 685 BC Venus attacked the Sun, chased away the stars at the North Pole, and dislocated all the other stars. But the Sun, after its overhead passage at any of the ceremonial sites, again set at the correct location of the horizon in the following year as in the previous times. The Sun definitely had left its path in the sky, but it was corrected, as the *Chilam Balam* reads, "*within the time of Katun 3-Ahau.*"

Well, not quite. The inclination of the Earth's axis had changed in 685 BC. [\[note 3\]](#)

The following were the changes over a period of 60 years or more, from 747 BC to sometime after 685 BC.

- **First**, the year lengthened in 747 BC. This happened, as we know from Babylonian records and the Olmec Long Count, on February 28th, 747 BC (February 26th after nightfall for Babylon, February 28th from the Roman calendar). The inclination of the Earth's polar axis remained at 30 degrees to the normal of the orbit at this time.

The Olmecs selected the date of the change to a longer year (the completion of the previous era), as February 28, Gregorian, as a New Year celebration. This remained in use in Guatemala to today and was in use among the Aztecs.

The later change in the axial angle in 685 BC caused some sites to simply change the alignment of the site axis, as at **La Venta**. **La Venta** was initially aligned to a mountain located 11 west of north -- by the choice of its location -- which celebrated February 28 while the Earth's axial alignment was still at 30 degrees. After 685 BC **La Venta** was rebuilt to have its long axis at 8 degrees west of north, thus aligning the site at a right angle to the new horizon sunset location for February 28th. Many later ceremonial centers (after 600 BC) followed this practice of a right angle alignment to an important sunset or sunrise.

The dates of the equinoxes and solstices would change, with our calendar methods, but a change in the length of the year would not change the horizon location of sunrise and sunset at the equinox -- directly at the east and west cardinal points. Other sunset locations falling within a few months of the equinox changed, but often only imperceptibly -- a small fraction of a degree. It is the location of the solstice sunrise and sunset which would change radically. However, solstice alignments were apparently never used, and never recorded.

- **Second**, when in 685 BC Venus and Mercury blazed like suns, the inclination of the rotational axis of the Earth started to change. The actual date that Venus and Mercury started to blaze is June 15th (Gregorian).
- **Third**, the nova condition of Venus and Mercury was brought to a halt by a plasmoid bolt from Jupiter in late summer, arriving at the Sun on July 25th, Gregorian. This date is clear from the actual time interval mentioned in the

Chilam Balam and from many site alignments which celebrate July 26 as New Year's Day.

The *Chilam Balam* claims that the Sun went off its path, that is, it did not set at the expected horizon location, for 40 days after June 15th. This was due to the ongoing change in the inclination of the Earth's rotational axis during that time period. Forty days after June 15th is July 25th.

Jupiter had started to brighten or blaze, like Venus and Mercury had done, but at a later date, apparently on July 9th. The massive plasma output by the Sun would have taken about 5 to 10 days to reach Jupiter. Because of its huge size, Jupiter did not form a visible coma (and other features) for some time. A switch from dark mode to glow mode would have been sudden, and would have been noticed. This happened on July 9th.

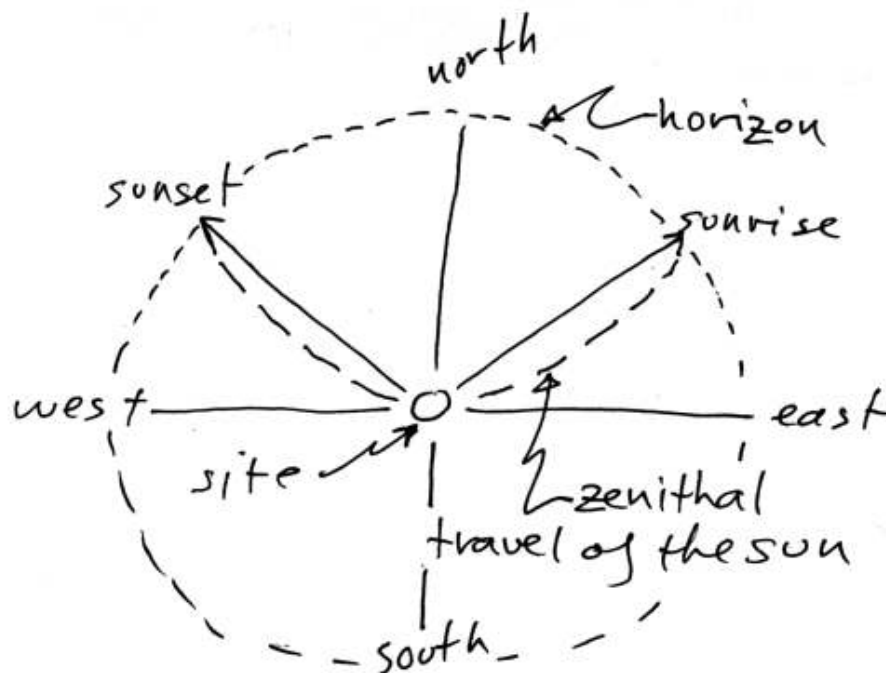
On July 14th Jupiter released a return lightning bolt at the Sun. This was seen and recorded worldwide.

The changes in 685 BC was the cause of extensive confusion. The problem would be immaterial from our perspective, but was of the greatest theological concern to Mesoamerica. The exact date that the previous creation had ended needed to be determined. The possibilities included July 9th, when Jupiter first erupted, understood as rising from death, July 14th, when a plasmoid was released from Jupiter, understood as a decision by Jupiter to stop Mars from further interference with Earth, and July 25th, when the initial plasmoid landed at the Sun (although assumed to have been destined for Mars), which was seen as an extension of the current creation -- rather than an end of one creation and the start of a new creation.

It is obvious that a variety of new theologies would arise from these events. They include the resurrection of the Sun God, Jupiter, as had happened once before, in 2349 BC. There is also the concept of the self-sacrifice by a deity (Venus or Mercury) in order to save the world from destruction. The varied interpretations are found in the extensive information from Maya archaeology and documents like the *Chilam Balam*, the *Popol Vuh*, and many early retellings and reports by the missionaries. The initial and most visible physical response involved the realignment of some sites to new horizon locations and the use of these alignments for new sites.

- A few sites were aligned or realigned to July 9th. This is likely the day Jupiter first assumed a large coma again in response to the continuous coronal mass ejections from the Sun.
- A few sites use the date of July 14th, the day when Jupiter released a plasmoid lightning bolt in the direction of the Sun. This date can be derived from the *Chilam Balam*.
- Most sites accepted July 25th, the day the plasmoid landed at the Sun, for this certainly stopped the blazing of Venus and Mercury, and in effect closed an era.

The events were commemorated in a number of ways by the Olmecs and the people of the Valley of Mexico. The Olmecs, as well as the Maya (who had adopted the Olmec theology by AD 100), celebrated a New Year's Day on July 26th, Gregorian (the day after July 25th). In the case of both the city of **Teotihuacan** and Maya **Edzna** the locations of the ceremonial center were selected to coincide with the zenithal passage of the Sun over the site for the equivalent horizon location for the Gregorian date of July 25th. The zenithal passage of the Sun over a site on July 25th would only happen at a latitude of 19.5 degrees north.



[Image: Zenithal path of the Sun. Plan view. Illustration by J. Cook.]

Vincent Malmstrom suggested in 1979 that a computational method could be used to find the day of creation (August 13) by counting 52 days into the future from the summer solstice. After 685 BC the solstice occurred on June 21. Fifty-two days later is August 12. This is based on the apparent numerological importance of the value of "52" in Mesoamerica, and despite the fact that the solstice is very difficult to determine. It would, thinks he, be a reason to note the solstice. But counting 40 days (two Uinal months) backward from the fall equinox of September 21 would achieve the same results, and be much more accurate. And then again, if you have a calendar, who needs to count days?

At any rate, Malmstrom is correct in suggesting that August 13th (actually August 12th) was one of the standard alignments used by many new sites. However, I think the date of August 12 represents a retrocalculated date for the event of 3147 BC (completion of the "first creation"), retrocalculated to 3114 BC by the Olmecs of **La Venta** after 747 BC, using the Long Count.



[Image: Plasmoid interplanetary lightning bolt as seen in Central Mexico.
Illustration by J. Cook.]

As will be seen from some of the alignments, many sites opted to duplicating the dates and horizon locations of previous eras at times correct to the axial alignment of the Earth during the previous eras, at other times translated to the proper horizon locations of the current era.

- **Fourth**, after 685 BC, the inclination of the Earth's polar axis changed from 30 degrees to the normal of the orbit to 23.5 degrees.

The *Chilam Balam* reads, "After three heaps of years it [the Sun] will come back into place in Katun 3-Ahau." The "three heaps" of years are three "bundles" of 5, thus 15 years, but counted inclusively -- thus actually 14 years. The "14 years" are 14 Tzolkin cycles of 260 days (about ten solar years), not years of 365.24 days. This is correct, that is, after 14 Tzolkin cycles the Sun set again at the same horizon location as earlier, although on a different date.

The 16th century AD comments of the *Chilam Balam* go to prove that the Sun had returned, and are based on the knowledge that an inspection of records (which were at that time 1300 years old), showed the amazing coincidence that, for a zenithal passage of the Sun, 14 Tzolkin cycles would lapse after 685 BC before the Sun would again set at the same horizon location on the same Tzolkin day-name and day-number as in the year before 685 BC. This can be readily verified as true; I have done so in the chapter "The Chilam Balam Books." [\[note 4\]](#)

This is the clearest indication that there was a change in the axial inclination of the Earth. If there had been no change, it would have taken 20 Tzolkin years to return to the same Tzolkin day name and number instead of 14.

But under any conditions it would have taken some years for a number of diverse opinions to develop on what the changes meant, and how they should be represented. We start to see changes in alignments in the Central Mesoamerican region by about 600 BC. The Maya, on the fringe of this region, seem to have accepted a number of interpretations, including the celebration of New Year on July 26 (adopted from **Teotihuacan** in Mexico), and a new sunset alignment of August 12.

The Sun Returns

How did the Sun find its way back to a proper alignment after 685 BC? It did not, at least, not in our way of understanding this.

What happened over the course of the 40 days is that, along with the change in the inclination of the Earth's axis, the horizon locations of the summer and winter solstices moved from about 32 degrees north and south of east and west to about 25 degrees north and south of east and west. But the seasonal calendar day of the solstices (and the equinoxes) also moved. They moved, in all, by 15 days. During other parts of the year, the locations where the Sun set for particular calendar days also changed. If any of these sunsets corresponded to significant calendar days before 685 BC, they were now incorrect.

But for a people who considered the year as consisting of a series of sunsets at differing horizon locations, the calendar days did not really matter. For one, the Sun would set at the same horizon location -- before and after 685 BC -- on the equinoxes. Another demonstration of stability was that the horizon location of the day of a zenithal passage of the Sun over a site remained almost the same,

even though the expected day on the Tzolkin calendar changed (as well as the day of the seasonal calendar). For all the sites at these latitudes, the angle of an alignment of zenithal sunsets occurred again, after the axial change, at within 0.3 degrees of the old alignment. The zenithal sunset locations were least affected by the changes of 685 BC. In a way, this might have been a screen which hid the changes at other dates and horizon locations.

We have to consider the political implications of the *Chilam Balam* statement that "the Sun returned within three heaps of years." For the shamans of the established Olmec ceremonial centers it was important to assert that they had not lost control. The statement of the *Chilam Balam* involves some hyperbole found in the original books of history from which the *Chilam Balam* was copied. I am suggesting this, because, even allowing for a number of ways in which the Sun could "return," the statement is incorrect -- the path of the Sun through the sky simply was not be the same before and after the event of 685 BC. It is true that the important zenithal sunsets of the sites all remained almost exactly the same, but the sunsets of important "era ending" dates all changed, since these were seasonal calendar dates further displaced from the equinoxes.

But the definitions of what "return" meant could be made to fit the facts. For the Olmecs the Sun's "return" was measured as its setting location along the horizon, not the day of a seasonal year that this happened. Thus when the day of a zenithal sunset again coincided with the same day as earlier after 14 Tzolkin years, rather than the expected 20 Tzolkin cycles, the statement could be made that the Sun had returned. The fact that in the months close to the solstices the Sun definitely set at a different horizon location from before 685 BC seemed not to have mattered. The difference in the horizon location of the solstice sunsets had, in fact, changed by seven degrees. To us this would be an important consideration.

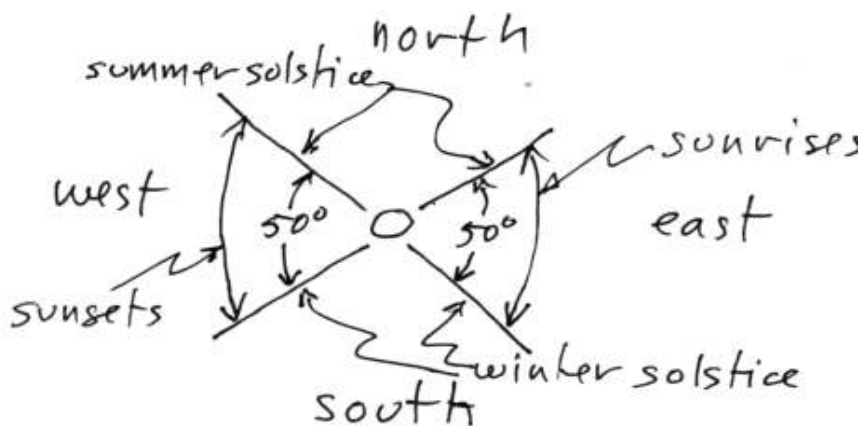
Some Background

Obviously, we should be able to determine if the locations of the alignments before 685 BC were different from today's locations. This is actually easy to do. At 20 degrees latitude, in the Veracruz region, the Sun sets at the summer solstice at 25.1 degrees north of west -- under the current condition of an axial inclination of 23.5 degrees. At the earlier axial inclination of 30 degrees, the Sun would set at 32.1 degrees north of west. The difference is seven degrees. This should be clearly seen in some of the oldest Olmec sites. If, that is, the solstice location was of any significance in the philosophy of the Olmecs.

Unfortunately, it was not. Nowhere in Mesoamerica are solstices ever celebrated.

As noted above, I started this investigation with information from Vincent Malmstrom's book *Cycles of the Sun, Mysteries of the Moon*, which suggested solstice alignments for all the ceremonial sites in Central America.

And here is the crux of my investigation and the reason I pursued this investigation: If Malmstrom, in his investigations, had found alignments which differed by 7 degrees from his expectations, I am sure he would have discarded this information out of hand. For this reason I wanted to recheck all the data on alignments that he had developed. In this process I checked alignments against every notable mountain and volcano in the Veracruz coastal region and in the Central Valley of Mexico, even if the mountains were not visible from a site. This has revealed some interesting alignments, but, despite Malmstrom's claims, only one suspected solstitial alignment among some seventy alignments. I did find some "August 13" alignments (which Malmstrom also promotes), but most often as August 12.



[Image: Limit of sunrises and sunsets today.
Plan view. Illustration by J. Cook.]

Accuracy is a problem. I should point out that in the 182 days that it takes the Sun to travel from the locations of the winter solstice to the summer solstice, the Sun only travels 50 degrees along the horizon from south to north (today). Thus the setting location of the Sun moves only $1/4$ degree per day on average, which is equivalent to half the width of the Sun. As the solstices are approached, the Sun moves only imperceptibly.

Malmstrom suggests that an error of up to two degrees should be allowed in the alignments. But this cannot be applied, for the claim for an August 13 alignment date could then be understood as having eight days of leeway on either side of August 13. I doubt if Malmstrom meant this for the August 13 alignments he had discovered, but I cannot tell from the text. I have generally demanded an accuracy of one third of a degree (which is about equal to the numerical difference between a sunrise alignment and a sunset on the same day), rather than a margin of two degrees. [\[note 5\]](#)

On the other hand, Malmstrom also describes the shadow gnomon used to determine the exact day, July 25, that the Sun passes overhead at the ceremonial site of **Edzna** in the Yucatan, at a latitude of 19 degrees and 40 minutes north. The following day, July 26, was celebrated as New Year's Day by the Maya. Because the method of finding this date involves a circular pillar gnomon, and not a setting Sun alignment along the horizon, it is dead accurate.

Malmstrom states that **Edzna** is the only Maya ceremonial center at this latitude. The contemporaneous city of **Teotihuacan** in the Valley of Mexico, however, is also at the latitude of 19 degrees and 40 minutes. The ceremonial center of **Edzna** is also aligned to the setting of the Sun on August 13th (actually, August 12th) with the use of an off-north axial alignment of the site. These two alignments (July 25, August 12) can also be found at **Teotihuacan**, the largest ceremonial center in the Americas, and one of the three largest cities in the world at its time, which may have had much more influence in determining observation of the calendar among the Maya than **Edzna**.

Other Considerations

One distinct advantage I have had is that field trips to Mexico were not needed. The latitude and longitude of archaeological sites and of any mountain are readily available today. They were not available in the 1970s and 1980s when Malmstrom made his investigations. (*Cycles of the Sun, Mysteries of the Moon* was published in 1997; the investigation dates from a decade earlier.)

A second problem lies in differentiating some "old alignments" from "new alignments" when numeric values are close. Luckily, most sites use a number of important alignments, so that single questionable alignments can be identified as to which period they belong.

Last, dating is somewhat of a problem. Archaeologists will support the earliest date as an indication of site occupation, which may have nothing to do with monumental construction at the sites. I have used iconography for estimates on dates of construction at Olmec **La Venta**, where the imagery and alignments of the construction of the ceremonial site (which is visible today) clearly dates the latest construction to after 685 BC, although C-14 dates suggest occupancy of the area by 900 BC.

For most other sites I have used available archaeological dates. This at times allows determining the inclination of a site to adopting one set of alignments over another. Only in a few instances do occupation dates go against a sensible timetable for the adoption of newer alignments. I'll indicate these.

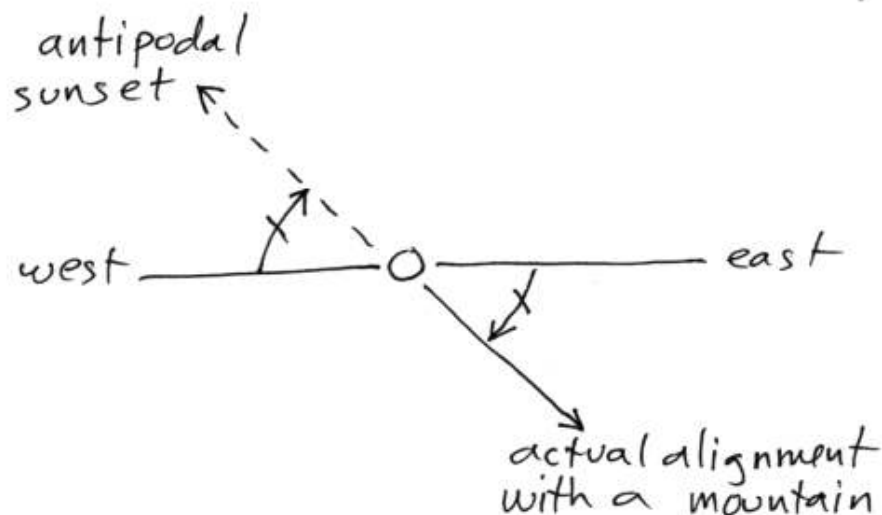
All the archaeological dates for founding, construction, and destruction of major sites match the formal expectations for the occupancy of ceremonial sites based on the concept of the "may" first developed by Munro Edmonson and expanded on in Chapter 33, "The day of Kan."

Dates and Alignments

The following is a summary of sites, dates, and alignments. In looking over the following data, keep in mind that for locations from 14.5 degrees latitude through 20 degrees latitude the summer solstice alignments (sunrise or sunset) vary only from 24.3 to 25.1 degrees north of east or west. August 13 alignments would vary from 15.2 to 15.7 degrees north of east or west. Alignments are shown for both the current arrangement of the skies (23.5-degree inclination), and the previous arrangement, before 685 BC (30-degree inclination of the polar axis).

Note also that, for example, if the Sun rises some number of degrees north of east, it will set at the same number of degrees north of west -- within one quarter to one third of a degree.

Last, there are numerous clear instances of antipodal alignments. An antipodal alignment is one which is an equal number of degrees above or below the east-west cardinal direction, and would point to a sunset or sunrise location in the opposite direction, across the site.



[Image: Antipodal alignment example. Plan view. Illustration by J. Cook.]

To ease the task of reading the following data, let me propose the important dates and horizon locations which we are looking for (or which have been discovered inadvertently). The angles shown below are for a sunrise or sunset as so-many degrees north or south of east or west. That is, south of the east-west direction in fall and winter, north of the east-west line in spring and summer.

Angles of this list are approximate, since they vary somewhat with the latitude of the site. The angles are shown for both an axial inclination of 30 degrees and for 23.5 degrees. The overhead (zenithal) passage of the Sun is also listed below. The dates are all shown as Gregorian equivalent dates. Reasoning for the selection of certain dates is detailed further below.

Sunset in Degrees North of West for Various Dates		
For an axial inclination of ...	30 degrees	23.5 degrees
End of era 3114 BC, August 12	19.9 degrees	14.9 degrees
End of era 2349 BC, September 8	6.6 degrees	5.2 degrees
End of era 1492 BC, April 19	15.3 degrees	12.0 degrees
End of era 747 BC, February 28	11.0 degrees	8.6 degrees
Solstice before 685 BC	32.0 degrees	25.0 degrees
Plasmoid start, July 9, 685 BC	30.4 degrees	23.7 degrees
Jupiter plasmoid, July 14	29.4 degrees	23.0 degrees
Delivery of plasmoid, July 26	26.6 degrees	20.7 degrees
Zenithal, August 9 - 14	20.3 degrees *	
July 23 - Aug 1		20.3 degrees *
* varies with latitude		

Infrequently, the angle for some one event might be confused with another event. For example, the angle of 15.3 degrees (April 19, before 685 BC) is close (0.4 degrees) to the angle of 14.9 degrees (August 12, after 685 BC). We should be able to select the appropriate event from the age of the site, or the use of other alignments. The angle of sunset for zenithal passage at any of the sites, by the way, remains almost exactly the same before and after 685 BC.

... where these dates came from

Mostly the dates are developed in this chapter, in the text further below. But let me explain some of them beforehand. The following is data for 13 Olmec and Valley of Mexico sites only.

- **August 12, 3114 BC** -- The date celebrates the completion of the "second creation" and thus the start of the "third creation" in 3147 BC, but retrocalculated as 3114 BC by the Olmecs after 747 BC. (The first creation spans 10,900 BC to 8347 BC.)

This date first shows up at **La Venta** (for an axial inclination of 30 degrees) and then at **Teotihuacan**.

- **September 8, 2349 BC** -- The date celebrates the completion of the era ending in 2349 BC, the fall of the Absu (the flood of Noah) and the end of the "third creation" of the Olmecs and Maya -- when the Pleiades first became visible. This date represents the reappearance of Jupiter on September 8, two and a half days after the arrival of the plasmoid from Venus (two days after the actual date of the autumnal equinox on September 6).

Five sites, most dating to about 600 BC or earlier, clearly use the setting sun as the alignment of September 8. Three other early sites, plus one from the above, use the actual horizon setting location of the Pleiades on October 8 to October 10 for 685 to 600 BC. Three sites institute alignments for the setting of the Pleiades in about 100 BC. Five later sites use the horizon setting location of the Pleiades on October 22 of AD 200 (some in addition to the sunset date for September 8). In total there are 21 alignments for the event of 2349 BC. This is to be expected, since the completion of the "third creation" was probably the most important event of the past. [\[note 6\]](#)

The remembrance of 2349 BC is celebrated worldwide (as the "Day of the Dead") with the culmination of the Pleiades, although the calendar dates have changed. The culmination of the Pleiades moved later into the year after 685 BC, at first to about October 8th because of the change in the equatorial, and then further into the fall because of the precession of the equinox. By 600 BC the Pleiades culminated on October 10th.

Precession makes horizon angles which may have celebrated this day difficult to find, because they are dependent on the date at which they were selected, and thus depend on the year that a ceremonial center was built. However, many sites can be identified with a later culmination date of the Pleiades which had apparently been codified to a set calendar date, like the Christian All Saints and All Souls days. These dates are found, not from sunsets, but from the actual locations of the setting of the Pleiades in the west. The last date (October 20 - 21), set in AD 200 to AD 400, was still in use in the 16th century AD.

Horizon setting angles of the Pleiades after culmination:

- Culmination 685 BC, Oct 8 Gregorian -- 13.0 degrees
- Culmination 600 BC, Oct 10 Gregorian -- 13.6 degrees
- Culmination 200 BC, Oct 14 Gregorian -- 15.8 degrees
- Culmination AD 100, Oct 18 Gregorian -- 17.1 degrees
- Culmination AD 200, Oct 20 Gregorian -- 18.1 degrees
- Culmination AD 400, Oct 21 Gregorian -- 18.7 degrees

The angles for the setting of the Pleiades were determined by visual inspection, and should be considered approximate (that is, within a half degree). They are for midnight at **Mexico City**, thus somewhat south of **Teotihuacan** and north of the main Olmec sites in latitude. [\[note 7\]](#)

Because the setting angle of the Pleiades varies with latitude as well as with the year, I have not explicitly identified these in the data below, except those which corresponded to the era of 685 BC to 600 BC and for AD 200 to AD 400. There may thus be others, although I do not think so. These two sets show up repeatedly.

- **April 19, 1492 BC** -- The date represents the Exodus of Moses. The calendar date is, first of all, from sources in the book of Exodus, but has been modified (from "the 14th of Aviv") because I am not following, for

example, Velikovsky's supposition that the month of Aviv started at the vernal equinox. I am here following the suggestion of the Olmecs, that the date of the Earth shock in 1492 BC happened (or completed) a few days later. There are some 12 alignments to support this. This alignment first appears at **San Lorenzo**, which was founded after 1450 BC, and abandoned by 900 BC.

- **February 28, 747 BC** -- This date, representing the change in the length of the year in 747 BC, is firmly established from considerations of the Long Count, and it is also established with the first Olmec sites of **La Venta** and **Tres Zapotes**. Especially at **La Venta** it is significant that the alignment was revised after 685 BC to correspond to the new axial inclination of the Earth. February 28th alignments occur 9 times.
- **July 25, 685 BC** -- This date, the arrival of a plasmoid from Jupiter at the Sun, was established from the Maya New Year celebration (of July 26th) based on the observance of a zenithal passage of the Sun at **Edzna** and **Teotihuacan**. This is a firm date also. July 25 alignments occur 7 times.
- **July 14, 685 BC** -- This represents the suggested date that the plasmoid from Jupiter was released. The date of July 14 can also be derived from information of Book 10 of the *Chilam Balam*. The selection suggests a possible "day of Kan" associated with the end of an era -- the delivery of the plasmoid on July 25th. The "day of Kan" is discussed in the following chapter. The date shows up four times among Northern Olmec sites.
- **July 9, 685 BC** -- This represents the date that Jupiter may have initially expanded in size. This date is based solely on the fact that it first shows up at **Tres Zapotes**, recurs 4 times elsewhere, and represents an adequate interval for Jupiter to have been seen with overhead plasma plumes and a lower trifurcated body -- so that these shapes could enter Olmec iconography. This date is not well supported because it would seem to represent a "beginning" rather than a "completion" of an event. This date would have to be understood as the completion of the period of death of Jupiter.

The analysis of site alignments will first look at two sites remote from the region which I investigated, **Izapa** in southern Mexico on the Pacific coast near Guatemala and **Edzna** in the eastern flatlands of the Yucatan.



[Image: Earliest Mesoamerican sites in Central Mexico. Maya sites not shown.
Modified from Malmstrom.]

Maya Izapa

- **Izapa** (14.90 degrees north latitude; 92.18 degrees west longitude), at the Guatemalan border of Mexico, is archaeologically dated at 600 BC to 100 BC. One of the busiest sites along the Pacific coast, with some 130 pyramid mounds and 89 stelae. Malmstrom assumes that the date for an earlier village, south of **Izapa** and closer to the Pacific coast, dated to 1400 BC, is applicable.

I am starting this survey of sites with Izapa because Vincent H. Malmstrom places the creation of the Tzolkin and Haab at this location, based on the fact that the Sun transits the site directly overhead on "August 13th." [\[note 8\]](#)



[Image: Izapa plan view. after Malmstrom]

The problem with this statement is that it is wrong. The alignments identified by Malmstrom are incorrect. The real problem may be that this conjecture have been copied and transmitted from one document to another, including a few by archaeologists, without the simplest verification. Malmstrom slightly hedged the observation of his earliest article, "Izapa: Cultural Heart of the Olmecs?" in the *Proceedings of the Association of American Geographers* (1976), so that in his 1979 book *Cycles of the Sun, Mysteries of the Moon* he simply asserts that the Sun passed over Izapa on August 13. The quotes below are from the 1976 article and the 1979 book.

... August 13 at Izapa

Malmstrom writes in 1976:

"Thus, the southward transit of the vertical sun takes place at this latitude on August 12 - 13, and its northward passage occurs on the following April

30 - May 1."

It is not. (Perhaps he means culmination.) It happens on August 11th. I spent considerable time checking sources, verifying the accuracy of my Qbasic "sunrise" program, and double-checking with an ephemeris program. The only conclusion I can come to is that Malmstrom had a good idea which he published in 1976, and followed it up with a book in 1979 where he was more assertive of his theory. **The data is fudged.** The first indication is that the 1976 article holds that the Sun transits the site (reaches a zenithal position) on "August 12 - 13." [\[note 9\]](#)

To have an important reason for devising an arcane 260-day calendar Malmstrom suggests that the planting season for corn was based on the 260-day interval after August 13th.

It is not. The 260-day span in the fall is the secondary planting season. The primary season for growing corn was the shorter time span of 105 days from April 30 to August 13.

But what is probably most bothersome is the chauvinism involved with the supposition that the 260-day Tzolkin calendar and the 365-day Haab calendar were discovered -- by accident -- at this location, and only since the founding of Izapa. As Malmstrom writes:

"Thus, it was possible for a priest standing atop the main pyramid at Izapa not only to calibrate accurately the length of the sacred 260-day almanac, but also, by counting the number of days which elapsed between consecutive sunrises over the highest mountain in Central America, the true length of the tropical year as well."

What is here suggested is that these stone-age people were so intellectually handicapped that they could not count the days in a year. And when they did count 260 days from one zenithal passage to the next, they devised a system so arcane and so esoteric as to be nearly useless. The following year, as the 260-day Tzolkin falls totally out of sync with actual calendar days, another calendar is superimposed, the 365-day Haab.

How realistic is any of this? Obviously these brain-dead savages didn't know what they were doing. They could not even, claims Malmstrom, divide a fish up among three children. That puts them at the mental agility of 4-year olds. Speaking of the priest who had the brilliant idea of instituting a 260-day

calendar which rotated 13 numbers against 20 names, Malmstrom offers the further conjecture on the Maya's insistence on counting time at completion rather than from the beginning:

"For someone accustomed to think in terms of entities rather than fractions, it was no more logical to conceptualize a part of a day than it was a part of a fish, a cacao bean, or a quetzal feather. It therefore must have seemed obvious that the day could not be counted until it was completed, that is, at sunset. In any event, this is the pattern of thought which Mesoamericans were to employ in all their subsequent mathematical computations."

Missing here is any recognition that all the tribes of the Americas, from Alaska to Patagonia, used only two tenses to conceptualize the world: actions that were ongoing, and actions that were completed. As with many other languages, there is no future tense. To suggest that the initiation of the Tzolkin calendar caused all the Mesoamerican tribes to adopt the concept of "completion" is just absurd.

... volcano Tacana

Malmstrom writes, *"... the site of Izapa, as noted above, is oriented to the volcano Tacana, the second highest mountain in Central America."*

It is not. It may be the second highest mountain, but the central axis of the site is displaced 16 degrees east of north. The sight-line to Tacana, on the other hand, is 20.33 degrees east of north. The difference is equal to two hand spans of fingers at arm's length. Not close at all.

... summer solstice

Malmstrom writes, *"the author noted that the region's highest peak, the volcano Tajumulco (4,220 meters), lies at an azimuth of 65 degrees from the ceremonial center. This azimuthal relationship is precisely that of the rising sun at the summer solstice."*

It is not. My calculation has the volcano Tajumulco at an azimuth of 64.43 degrees, which is 25.57 degrees north of east. Solstice sunrise is at 24.36 degrees. This is off by more than a degree (two fingers wide at arm's length), a serious matter for a solstice, where the locations of sunrise and sunset move only by small fractions of a degree along the horizon. Being off by a degree means that the solstice date could be off by about 10 days.

Of course there is a problem with determining alignments due to the overall design of the site. Since it is mostly laid out along a SSW by NNE axis, there will be large differences in alignments if taken from different locations along this axis. We might suggest that there was a "center" of the monuments from which alignments were determined, but we have no idea of what part of the site was held to be the religious center in antiquity.

John Major Jenkins thinks it is the most northerly ballcourt. *"The alignment of the [northmost] ballcourt [with the summer solstice] is actually a degree or two north of where the sun breaks the horizon."* So writes Jenkins, author of a number of books on the Maya calendar and its end in AD 2012. (<http://www.alignment2012.com>)

Jenkins was determining a winter solstice sunrise over the end of this ballcourt (in area "F" of Izapa). Here we have an independent voice suggesting that the sunrise is off by "a degree or two" from expectations. (Additionally, I think an alignment along the axis of the alley of a ballcourt is not what was intended by the original builders. If a "significant direction" was meant to be indicated it would be the direction transverse to the long side of the ballcourt.)

Earlier, Malmstrom had written:

"The cone of Volcan Tajumulco, the highest mountain in Central America, marks the sunrise position at the summer solstice (June 22) as seen from Izapa."

It is not, as I have already noted. This did not keep Malmstrom from finding many other alignments for August 13th.

"... the author has found that more than forty of the oldest Mesoamerican ceremonial centers were oriented in just such a manner, including the classic Olmec sites of San Lorenzo and La Venta (paper in press)."

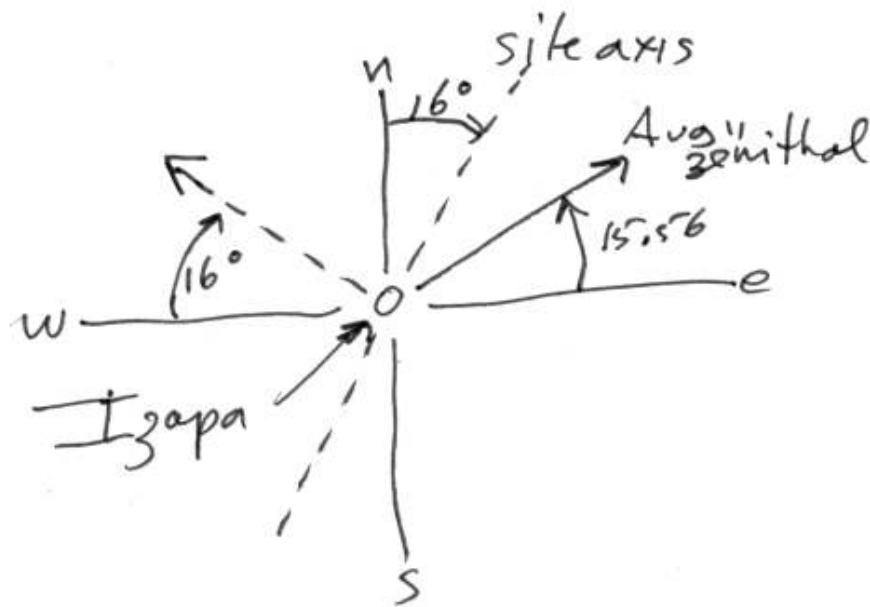
It is not. At **San Lorenzo** an alignment for August 13 does not exist at all. There are two alignments, at 15.05 degrees south of east and 15.36 south of west, for the axial inclination of 30 degrees, which could be confused with an August 12 alignment of 15.46 degrees south of east, at the axial inclination of 23.5 degrees. The occupation of **San Lorenzo** ended 300 years before the Earth's axis changed to 23.5 degrees, and 200 years before **La Venta**, where in 747 BC the Long Count was developed which allowed retrocalculations to be made.

Similarly at **La Venta** where two coaxial alignments near 15 degrees also point to April 19th under the condition of the Earth's axis of rotation being at 30 degrees.

There are Long Count dates in use at **Monte Albans** by 600 BC. But nothing at **Izapa**. Although **Izapa** is the busiest site for monuments, stelae, "altars," and "thrones," there are no inscribed dates, and no texts. **Izapa** is totally illiterate. It is a cartoon version of sacred history. It has been suggested that it was a trader's version of dedicatory monuments, installed after a good year or a profitable season.

I should also note that an identical horizon location of sunrise (and sunset) on August 13 and, 260 days later, on April 30, is true everywhere. It is also true everywhere that any two days on the calendar which are spaced equally before and after the summer solstice will produce the same rising and setting locations at the horizon.

What, then, is significant for **Izapa**? Only the site axis and the zenithal sunrise are significant. Both point to August 11th. There are no other significant alignments here. This suggests it is so because of the great distance from the Valley of Mexico, which appears to be the epicenter of the "August 12 alignment" philosophy after 600 BC. This would thus suggest that the site of **Izapa** was selected for various religious purposes, probably even before 685 BC, but not because the 260-day Tzolkin and 365-day Haab calendars were created at this location.



[Image: Izapa alignments. Plan view. Illustration by J. Cook.]

What is being presented at **Izapa** is August 11 as the start of creation, based on a date retrocalculated since the establishment of the Long Count in 747 BC, which allowed this to be done, and using the August 11 version of the Long Count. It is a retrocalculation based, of course, on a year of 365.24 days, not 360 days which was the basis of the Long Count. It is slightly more complex than splitting a fish three ways.



[Image: Enhanced version of Stela 5 at Izapa, dated 300 BC to AD 250, where details are brought out with side scans of light. The imagery is from the "Popol Vuh." On either side of the tree are Hunahpu Possum and Great White Peccary; bottom left: Xmucane and Xpiyacoc; right bottom: Sovereign Plumed Serpent. Bottom center: the inverted crocodile with hands and horizontal head (not detailed), and the tail of a tree as first depicted at La Venta. The crocodile appears also on Stela 25. After Jason Jones, "Middle Eastern Influence on Mesoamerican Temples" (internet, 2012).]

This is likely the creation here represent the "second creation" ending in 3147 BC, when people are first molded. We are here dealing with the August 11 version of the Long Count. Chiapas and upland Guatemala is the region where

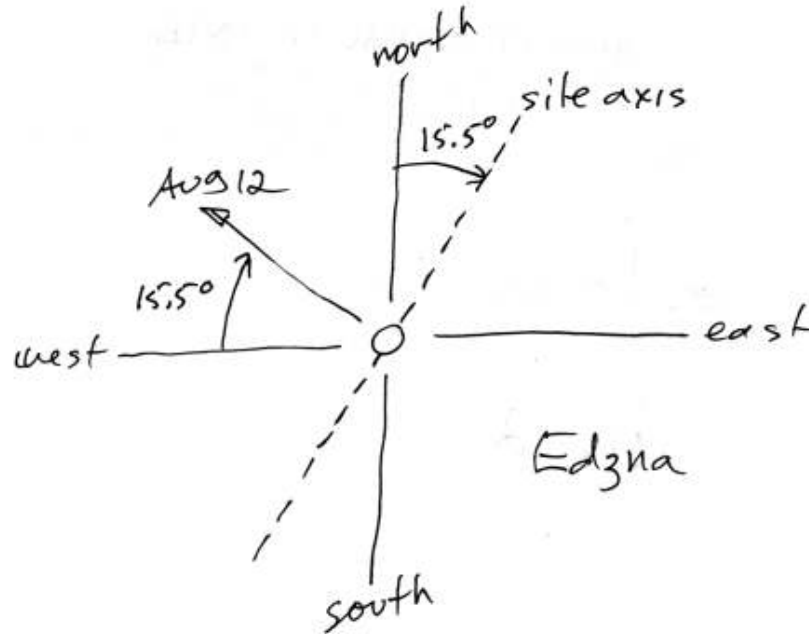
the August 11 version of the Tzolkin is still in use today. The emphasis on the "first creation" is fully expressed in the monuments and carvings at **Izapa** which depict elements of what will be recorded in the later *Popol Vuh*.



[Image: Stela 25 at Izapa, dated 300 BC to AD 250. This depicts the inverted crocodile of the Olmecs and Maya with the tail of a tree. The crocodile of Stela 25 faces in the opposite direction from the crocodile in Stela 5. After FAMSI.]

Maya Edzna

- **Edzna** (19.58 degrees north latitude; 90.25 degrees west longitude) in the Eastern Yucatan, was initially dated at AD 600 to AD 900, but a settlement of 400 BC is currently suggested, with building activity dated to 150 BC, making it contemporaneous with **Teotihuacan** in the Valley of Mexico.



[Image: Edzna alignments. Plan view. Illustration by J. Cook.]

The Sun passes directly overhead on July 25th (89.98 degrees up from the horizon), as it does at **Teotihuacan**, which is located at the same latitude although a thousand miles (1600 km) west.

The main axis of the site is displaced 15.5 degrees east of north. This results in sight lines between structures which mark an "August 13" sunset alignment at 15.5 degrees north of west (15.63 degrees on August 12).

There is no solstice alignment.

The two alignments are congruent with the suggestion that the religious philosophy of **Edzna** derived directly from **Teotihuacan**.

Olmec Sites

The two sites above are "modern" by comparison with some of the Olmec sites to be discussed below. The Olmecs had populated the **San Lorenzo** area since 1450 BC according to recent C-14 dating.



[Image: Volcanoes in Central Mexico near Veracruz. Source public domain.]

Even in 1450 BC, the Olmecs exhibit a sophistication which we seldom allow to people we consider "primitives." In addition to the cultivation of maize on a scale which produced vast surpluses, the Olmecs cultivated the rubber tree and worked out the intricate process of various grades of rubber, from hard to flexible, and the details of producing cocoa. The agricultural surplus supported a widespread trade network, and accomplished the transportation of huge granite blocks from 150 miles (240 km) away via ocean-going ships -- to be carved into giant heads and six-foot high altars. [\[note 10\]](#)



[Image: Olmec carved stone heads. After sitchin.com]

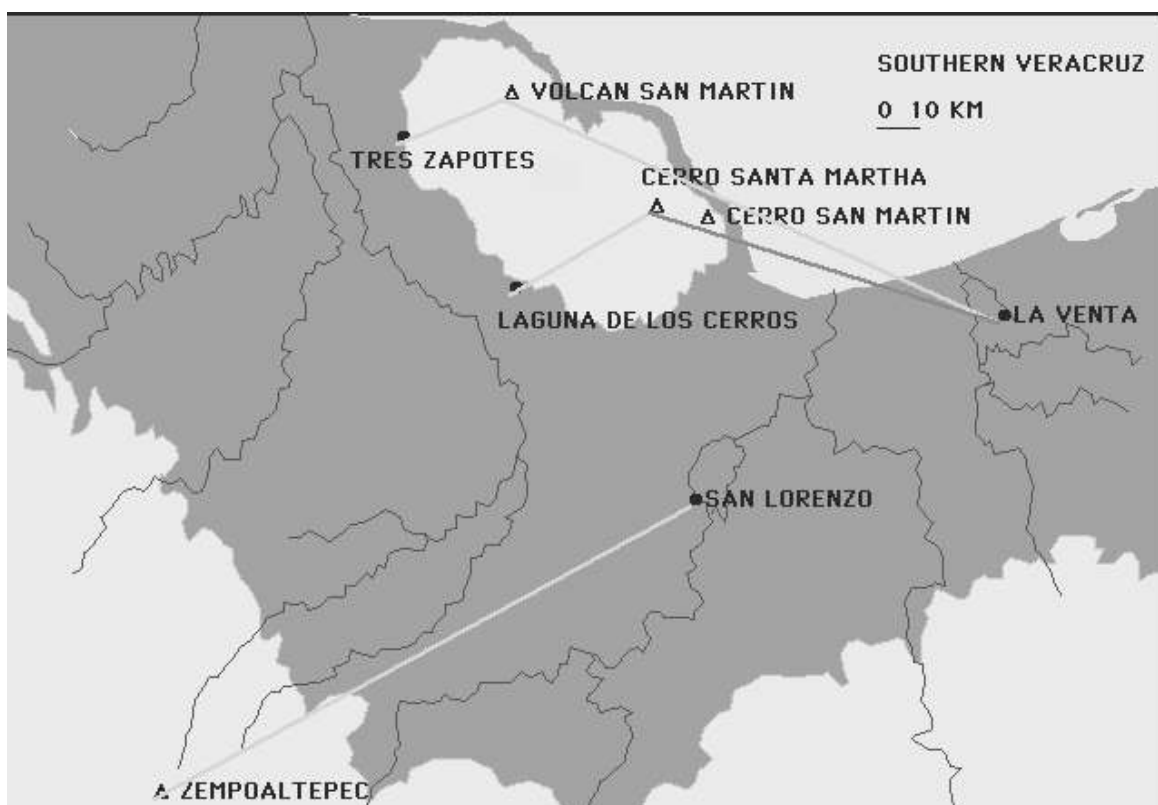
But their most outstanding effort was the production of a calendar which effectively controlled the Gods and sustained the current creation of the world. As I developed in a previous chapter, the 260-day Tzolkin calendar had been in effect since 2349 BC. This was high science, and its effectiveness was demonstrated to other tribes by the prosperity of the Olmecs.

In the region of Olmec influence, which extended into the Valley of Mexico, into the Yucatan, across the isthmus to the Pacific and south to Guatemala and Honduras, their religion, their iconography, and their "civilized attitudes" were adopted in imitation, but always localized to regional needs and concerns. Other

Gods may have been added to the Olmec pantheon, but the Tzolkin was adopted without alteration, for this was science, not religion, and, like our science, was held to consist of universal truths, even while it remained integrated in the religious philosophy.

Like Thucydides, who constantly reminds his readers how the prophetess at Delphi had been correct, the author of Book 10 of the 16th century AD *Chilam Balam* includes repeated references which go to prove how events had been completed in accord with the cycles of the Tzolkin.

Thus when the alignments of the oldest Olmec site, **San Lorenzo**, are investigated, it should not be surprising to find that the control over creation extends back into remote antiquity.



[Image: San Lorenzo, La Venta, Laguna De Los Cerros, and Tres Zapotes Olmec sites, and the alignments to nearby mountains. After Vincent H. Malmstrom, "Cycles of the Sun, Mysteries of the Moon" (1997).]

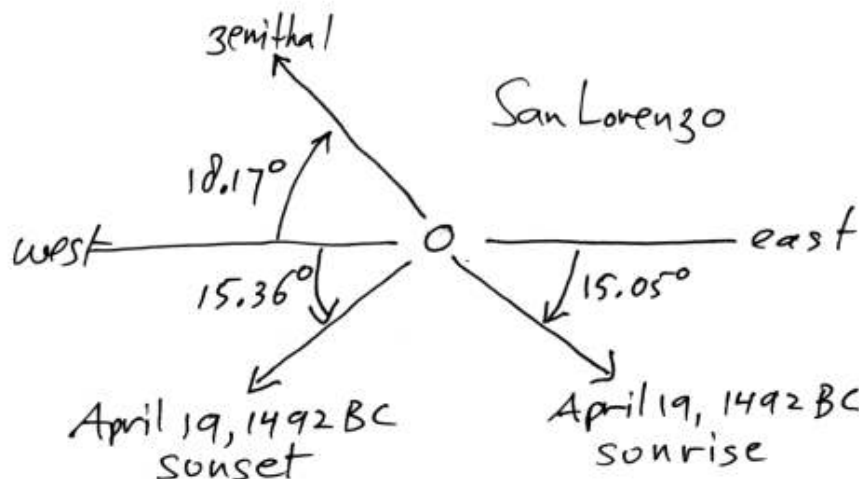
Olmec San Lorenzo

- **San Lorenzo** (17.66 degrees north latitude; 94.83 degrees west longitude) is inland from the coast in Veracruz and dated as active from 1450 BC to 900 BC. This is thought to be the oldest Olmec site, built on a huge man-made platform, which some think is shaped like a bird facing east. The ceremonial aspects of the site were destroyed in about 900 BC, although people continued to live there and at two nearby locations.

San Lorenzo site identity:

The location of **San Lorenzo** was chosen, in 1450 BC, or some 40 years earlier, as a significant site. It is immediately obvious that in the era before 685 BC the sun passed directly overhead on the equivalent Gregorian day of August 15 and set on that day in the giant-sized volcano **Popocatepetl**, 267 miles (430 km) to the northeast, the second-highest peak in Mexico -- even though it could not be seen from **San Lorenzo**.

This suggests that the overhead passage of the Sun on a particular day (and its disappearance into a volcano) was a matter of site identity, as we have already seen for **Izapa**. Since the Sun passes overhead at every location where ceremonial sites were constructed, from Guatemala to the Central Mexican desert, it would seem of no consequence for me to note this. But it becomes significant if the locations of ceremonial sites are selected so that the sunrise or sunset for a zenithal passage of the Sun is aligned so that the Sun sets or rises at some mountain or volcano. In fact, this is the case at almost every one of the sites in Veracruz and in the Valley of Mexico.



[Image: San Lorenzo alignments. Plan view. Illustration by J. Cook.]

San Lorenzo era marker:

Malmstrom suggests a solstitial alignment at 25 degrees south of west over the mountain **Zempoaltepec**. However, **Zempoaltepec** is 15.36 degrees south of west, measured from the village of **Tenochtitlan** which is a central part of the **San Lorenzo** complex.

This 15.36-degree angle with **Zempoaltepec** could have been used by Malmstrom to suggest an "August 13" alignment, but even Malmstrom would have realized that this would have been much too early historically. The "August 13" alignments do not show up anywhere else until after 600 BC. **San Lorenzo** was abandoned in about 900 BC.

The alignment of 15.36 degrees south of west with **Zempoaltepec** is equivalent to an antipodal sunrise on April 19th, on a backward extended Gregorian equivalent calendar, under the condition of having the axial inclination of the Earth (to the normal of the orbit) at 30 degrees.

Similarly the mountain **El Chichon** makes a complementary angle of 15.05 degrees south of east with **San Lorenzo**, defining an antipodal sunset for the same day of April 19th, on a backward extended Gregorian equivalent calendar, and also under the condition of having the axial inclination of the Earth at 30 degrees. **El Chichon** is 1060 meters high and could not be seen from **San Lorenzo**.

San Lorenzo discussion:

The date of April 19th surprised me at first. The "date," of course, is a horizon location, not an actual date. Although the Gregorian calendar is not applicable to the period before 747 BC, we can find "equivalent" dates based on a fraction of the orbital period. In order to distinguish this use of the Gregorian for horizon locations, I will, for the remainder of this chapter (or as applicable), list these dates as "equivalent Gregorian," as an indication of how the horizon location or equivalent date was derived. [\[note 11\]](#)

Exodus (12:6 and 13:4) reveals that the day and month of the Earth shock of Exodus (in 1492 BC) was the 14th day after the start of the month Aviv, which in turn is the "first" month of the year (Exodus 12:18), supposedly opening on the

equinox, with the month started at a new moon. The Earth shock happened, says Velikovsky, based on Biblical and other sources, at midnight, and preceded the Exodus of Moses. Additionally, says Velikovsky, the equinox fell on the day of a new moon.

Exodus is not clear on when the first month (Aviv) started. The following can be gleaned from Exodus -- none of which specifically supports what Velikovsky wrote.

- Exodus 12:2, God tells Moses that this will be the first month of the year (as opposed to the traditional Egyptian start of the year near the fall equinox).
- Exodus 12:6 speaks of the paschal feast to be performed on the 14th day of the month, "between the evenings." As in Egypt, the day started at nightfall.
- Exodus 12:18 notes the extent of the seven days of the Passover feast, from the 14th day of "the first month" to the 21st.

Velikovsky may have used additional sources, but neither this nor any other text in Exodus supports his claim that this month started at the equinox, except the future location of the paschal feast in the year. It is, in fact, the start of a liturgical year. The civil year still started at the autumnal equinox.

Not mentioned by Velikovsky, Exodus 13:4 notes "this day in early spring." This would be the excuse for suggesting that the month of Aviv *might have* started on the equinox. (Aviv means "spring.") But for Aviv to have started exactly at the spring equinox is unlikely. The 14 days defines a full Moon on a 28-day lunar period. In 1492 BC the period of the Moon changed from 28 days to 30 days. We have here, therefore, a dating glitch.

I will accept the date of April 19th used by the Olmecs as reflecting the Earth shock of 1492 BC as accurate. Let me suggest also that the alignments at the site of **San Lorenzo** had been selected to coincide with the completion of the previous creation.

The "creation" event of 1492 BC (or completion of a prior "creation") does not fit well with other notions of "creations." Although the alignments were carried forward with all later ceremonial sites, little seems to have been made of the events of 1492 BC.

The end of the previous creation may have been determined by the Earth shock, or by the completion of the subsequent reaction motion of the Earth (which may have been quite long, as I have suggested earlier). It is difficult to gauge what the Olmecs might have considered as the end of a creation. This would in this case seem to add five days to what the rest of the world considered to be the start of some cataclysm.

The selection of the day which ends an era (rather than the start) is almost completely certain from the starting date of the Long Count in 747 BC, as well as the dates selected as important for 2349 BC (the "third creation"), and 685 BC (both of which are detailed below).

The selection of the site of **San Lorenzo** involved the selection of an alignment (two, actually) signifying the ending date of the previous creation in 1492 BC, April 19. We will see many additional sites with alignments for this date (as horizon locations). Two markers triangulate **San Lorenzo** to the date of April 19th. Here are the details:

- **El Chichon** is 1060 meters high. This mountain could not be seen. It lies southeast of **San Lorenzo**. The angle (15.05 degrees south of east) defines an antipodal spring sunset on April 19th (at 15.23 degrees north of west), at the time when the axis of the Earth was at 30 degrees.
- **Cerro Zempoaltepec** in the southwest is the 11th highest mountain in Mexico, at 3396 meters. It can be seen in the southwest from any of the **San Lorenzo** locations. The angle (15.36 degrees south of west) defines an antipodal spring sunrise, which matches the sunset angle made by **El Chichon**, for April 19th (at 15.23 degrees), at the time when the axis of the Earth was at 30 degrees.

The fractional differences in the two angles (0.31 degrees) is almost exactly equal to the advance the Sun makes between rising and setting at that time of the year (an average of about 0.24 degrees in 12 hours), although admittedly, it is in the wrong sequence. In this analysis I have used "antipodal" as signifying a direction across the site, that is, an angle displaced 180 degrees from the alignment. If, however, antipodal is used in the sense of an angle reflected across the east-west cardinal direction axis, then the 0.31 degree difference is correct in signifying the difference between the horizon sunrise and sunset locations.

San Lorenzo predates the disturbances of 747 BC and 685 BC, which were architecturally recognized by ceremonial centers built after 747 BC and after 600 BC. The occupation of the mound of **San Lorenzo** was chosen to signify the end of the previous creation -- in 1492 BC.

Zenithal sunset:

The mountain **Popocatepetl** could not be seen from **Tenochtitlon** at **San Lorenzo**. It is the second highest volcano in Mexico. The mountain **Popocatepetl**, signaled the day (sunset) that the Sun passes directly overhead at **Tenochtitlan**, on the Gregorian equivalent day of August 15, with the Earth's axis at 30 degrees. The August 15 sunset horizon location lasted past 685 BC when the axis of the Earth changed to 23.5 degrees. After 685 BC the Sun again rose and set at almost the exactly the same horizon locations, but on August 2.

The return of the Sun to the same horizon location is to be expected, since the Sun moves in a set of circles which have the Earth's polar axis as their center. The fact that the Sun returned to the same horizon location for a zenithal passage, even though on a different day of the year, is true everywhere in the region, as long as the dates are not near the solstices. The following lists examples at three latitudes for the region of these ceremonial centers:

latitude	before 685 BC		after 685 BC		differences	
	day	angle	day	angle		
15.0	Aug 21	15.48	Aug 11	15.56	10 days	0.08 degrees
17.5	Aug 15	18.42	Aug 2	18.51	13 days	0.09 degrees
20.0	Aug 9	21.29	Jul 23	21.37	17 days	0.08 degrees

Under the condition of having the Earth's axis at 30 degrees, all the Olmec sites at latitudes of 17.7 degrees (**San Lorenzo**) to 19.4 degrees (**Zempoala**) will have the Sun pass overhead between Gregorian equivalent dates of August 15 (**San Lorenzo**) and August 10 (**Zempoala**).

After the axis assumed an inclination of 23.5 degrees, these same Olmec sites will have the Sun pass overhead between Gregorian equivalent dates of August 2 (**San Lorenzo**) and July 26 (**Zempoala**).

Thus the Sun passed overhead again 13 to 15 days earlier in the year. But in all cases, the Sun, under the new order of the sky, would set again at the same horizon location, to within a small fraction of a degree. In this manner, the Sun - everywhere -- returned to its former path.

San Lorenzo summary:

In summary, two site alignment aspects can be assigned to **San Lorenzo** which seem to have some justification, rather than just referring to numerological magic. These two aspects, it turns out, will be true for all the Olmec and Valley of Mexico sites I looked at.

- Certain: The passage of the Sun directly overhead of the site on two days of the year, August 15 and April 29th (in this case). The alignment with **Popocatepetl**, 267 miles away, although not visible from **San Lorenzo**, would signal this date. After the later change in the polar axis of 685 BC, the Sun set again at the same horizon location (within 0.09 degrees) after passing directly over **San Lorenzo**, but on a different calendar date.
- More than a coincidence: The selection of the site at the intersection of sight lines to the sunrise and sunset of the ending date of an era on April 19, 1492 BC. For **San Lorenzo** the nearby mountains **Cerro Zempoaltepec** and **El Chichon** signaled this date. Note that both of these alignments are antipodal. This is the first use of antipodal alignments in the region.

What these alignments point out, along with the alignments noted for the more modern sites above and the additional sites described below, is that the location of a ceremonial center involves two main concerns. These are:

- Zenithal passage of the Sun; setting at a mountain
- Ending date(s) of previous era(s); setting at mountains.

There is, at **San Lorenzo**, no solstitial alignment, either in the current era, or in the previous era. If a solstitial alignment from the era before 685 BC, when the Earth's axis was at 30 degrees, had shown up at **San Lorenzo** it would have been a sunset at 32 degrees north of west. This certainly would have been evidence that the axial inclination had indeed changed. But nothing like that has been revealed.

The alignments (and this applies to alignments at other sites as well) are not simply numerical coincidences. There are only a limited number of tall mountains in this region of Mexico (mostly volcanoes, and admittedly some 40 of them for all of Mexico), and there are only 25 degrees above and below the east-west cardinal directions where the Sun could rise or set (32 degrees before 685 BC; 25 degrees after). The alignments I have found either match to within a fraction of a degree to expectations of site identity and era-ending markers, or do not exist at all. And all the sunsets are in volcanos or on mountain peaks. The alignments show up as multiple alignments only at major ceremonial sites of acknowledged importance, not at every village or area of agricultural concentration. [\[note 12\]](#)

... navigation by the stars

A word should be said about alignments to mountains and volcanoes which cannot be seen from a site. The Olmecs were not an insular people. They traveled widely, paddling freight canoes around the Yucatan to Honduras, crossed on foot to the Pacific and traveled into Guatemala and further south. There are suggestions that eventually they traded as far north as the Southern United States. They knew the mountains of Central America for they exploited their resources. It took modern archaeologists nearly ten years to find the Mesoamerican source of the jade which appears ubiquitously among ancient artifacts.

As such, they must have been comfortable with sight-line navigation, at sea as well as on land, so that it would be easy to determine the location of a mountain even when it was hundreds of miles out of view. A mountain which had disappeared from view could be located from a knowledge of intermediate landmarks. (Any Boy Scout can do this also.) Additionally, once a distant mountain was located against a setting star or an overpassing star, it could be located, even when out of view, for in the tropics the stars deviate only minutely in their setting location at the horizon over the year.

Mauricio Obregon, in *Beyond the Edge of the Sea* (2001), describes navigation in antiquity. The book includes a section on stellar navigation in the tropics, applied to Polynesia. This would also apply to Mesoamerica. He demonstrates how, over the range of tropical latitudes, the rising and setting locations of stars move very little over the course of the year.

And, as likely, the zenith location of stars was used. Obregon discusses this for navigation in the Mediterranean. Since the stars do not deviate from their position (unlike the Sun), every port would have a series of stars pass directly overhead which would always be the same, although different stars would do this at different hours of the night, and the sequence would shift throughout the year. Any port could be located from one or more associated stars. Ports could be found longitudinally by sailing to the location of the highest position of these stars in the sky. This would place the ship either directly north or south of the port. After this it would be a matter of sailing north or south under the guidance of the polar stars. But anyone familiar with the travels of the stars in the night sky could have navigated to the port of destination on the bias. In the *Odyssey*, Homer, as a display of the modernity to come, has the Phaeacians, who are returning Odysseus to Ithaca, row during the night and make landfall in the morning.

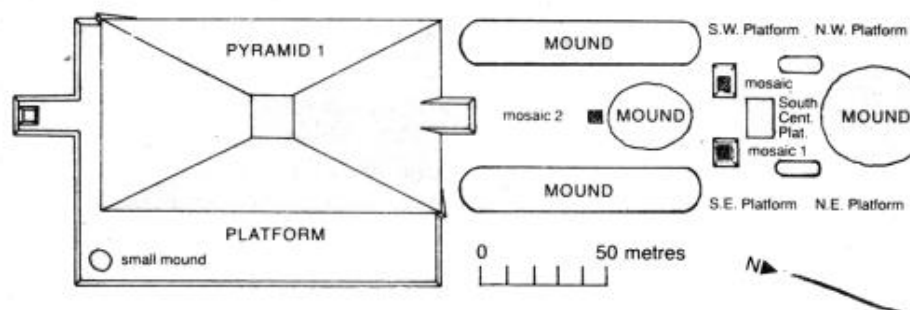
It seems very likely that the Olmecs also used stellar navigation not unlike what the Polynesians used -- these are the same latitudes. Considering the measures taken in Mesoamerica to align ceremonial sites with the overhead passage of the Sun, which would happen only on two days of the year, it could also be suggested that ceremonial sites were located not just by aspects of the Sun's travels, but by the passage of zenithal stars. We know for sure that the location of **Tula** (after AD 900) was selected to be directly below the zenithal passage of the Pleiades. [\[note 13\]](#)

Olmec La Venta

- **La Venta** (18.1 degrees north latitude), in Tabasco, is dated from 1160 BC (destroyed in 400 to 300 BC). Consisting of a fluted pyramid, additional berms, mounds, and plazas in line with this, and buried giant greenstone tile floors representing images of the face of a jaguar, laid out to read "nine" (like in Bolon Dzacab, "Nine Lives"). The site includes four gigantic stone heads, five "creation altars" (a total of 8 giant altars), five elaborate burials. A long site, it is built on an axis of 8 degrees west of north.

Malmstrom notes, *"The latter feature [aligned 8 degrees west of north] has intrigued archaeologists but has never satisfactorily been explained by them,"* and proceeds to list some astronomical explanations proposed in the past, none of which hold water.

A satisfactory explanation is that the alignment of 8 degrees west of north for **La Venta** represents a sunset at right angles for February 28th (at 8.6 degrees south of west; 8.2 degrees on March 1). This is the date after the Earth shock by Mars in 747 BC, the day on which the Earth's year increased to the current 365.24 days, and the date on which the Olmecs instituted the Long Count calendar. This is immediately obvious in looking at this alignment.

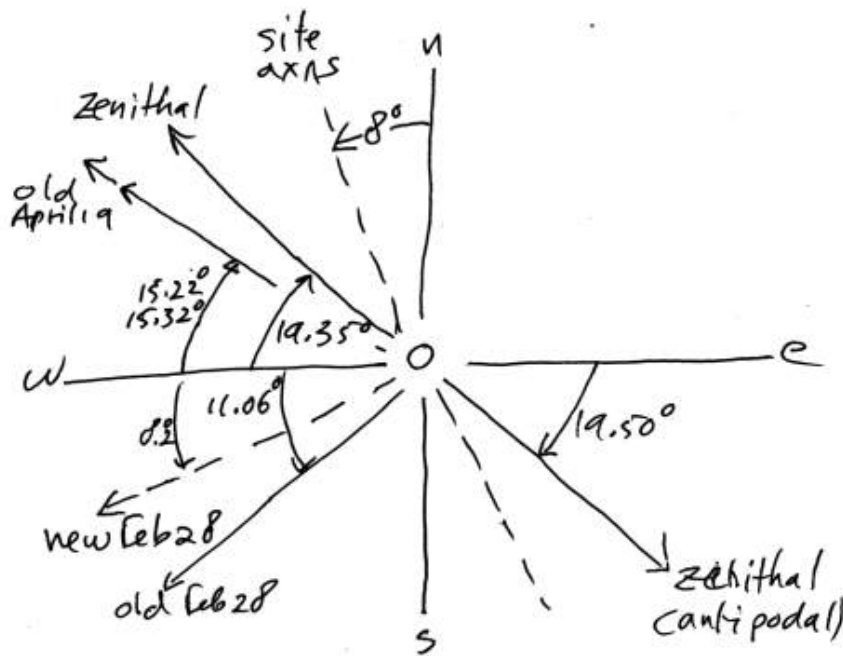


[Image: *La Venta ceremonial center*. After Nigel Davies, *"The Ancient Kingdoms of Mexico"*. (1982). The plan view has changed somewhat with additional excavation.]

A number of other locations also use the 8 degrees west of north alignment, including the Maya ceremonial center of **Tikal**, built almost a thousand years later. By that time the use of an 8-degree site alignment had become a traditional aspect of ceremonial center construction.

Note that with the Earth's axis aligned 30 degrees to the normal of the orbit, the sunset location for February 28th would not have been at 8 degrees south of west, but at 11.00 degrees. This, in fact, is the angle between **La Venta** and **Popocatepetl**. It defines an antipodal sunrise for the day of February 28th in the era before 685 BC.

There are two additional alignments with the mountains **Citlaltepetl** (15.22 degrees north of west) and **Volcan La Malinche** (15.32 degrees north of west), in direct line with each other, which define a sunset on April 19 (15.27 degrees), for a 30-degree axial inclination.



[Image: La Venta alignments. Plan view. Illustration by J. Cook.]

These last two recall the dual alignment used at **San Lorenzo** for the same era-ending date. But at **La Venta** this duplication is incorporated by having another volcano, **Volcan La Malinche**, almost exactly in line (coaxially) with **Citlaltepetl** -- within 0.1 degree. Not a single one of these mountains can be viewed from **La Venta**.

These two different alignments also suggest the selection and the first occupation of **La Venta** dates from after 747 BC. This is revealed also by the fact that there definitely is an old alignment for February 28. This was selected while the axial inclination of the Earth was still at 30 degrees. The occupation of the site by farmers, dating to 900 BC, has no bearing on this.

Sixty-two years later, after 685 BC, the pyramid and other constructions were started, aligned, as would be appropriate at that time, to 8 degrees off the north cardinal direction in order to again locate the sunset of February 28th. What this suggests is that the location of the ceremonial center incorporated features dating from before 747 BC, but the construction of the ceremonial center which we see today dates to after 685 BC, when alignment corrections were made. All

of the iconography of **La Venta** supports this last. The iconography, in fact, deals exclusively with the event of 685 BC, not the Earth shock of 747 BC.

The 15.27-degree north of west alignment (the April 19th alignment) could be held to represent an August 12 alignment in the current era (which would be 15.49 degrees north of west). The age of the site in general, and the site selection alignment to the date of February 28 under the condition of a 30-degree axial inclination of the Earth, argue against an August 12 alignment as an initial condition.

When the axis of the Earth changed after 685 BC, the current monumental construction was started, aligned at a right angle to the new horizon location for the date of February 28th. Additionally, the prior alignments to April 19 (as I pointed out above) could then be used as an alignment to August 12. What is missing are any alignments reflecting the events of July of 685 BC.

The monuments themselves clearly express what was seen in 685 BC: Jupiter with a giant coma and standing, as it were, on the inverted head of a crocodile, which finds expression in engraved celts and stelae. The apparition in the sky was also understood as a mountain or volcano. This becomes the first pyramid to be constructed in Mesoamerica. "Pyramid" or "man-made mountain" is transliterated from the Quiche, as in Mayan, as "red-house" (Tedlock). Later Post-Classical Maya will express this image, through influences from the Valley of Mexico, as a "Flower Mountain" -- another very appropriate image.

La Venta site identity:

Site-identity was accomplished with an alignment with **Volcan San Martin Tuxtla** in the northwest. With the axis at 30 degrees, the Sun passed directly over **La Venta** on the Gregorian equivalent day of August 14, setting at 18.93 degrees north of west. In the present era, with the Earth's axis at 23.5 degrees the Sun passes overhead on August 1, 13 days earlier.

La Venta notes:

What we have at **La Venta**, as was seen also at **San Lorenzo**, are site alignments serving two purposes. First, the alignment of the setting Sun with a mountain on the day it passes overhead.

Second, the alignment of the site with a mountain which recognizes the era-ending dates of the previous creations or re-creations of the world. At **La Venta** this additional alignment recognized February 28th, 747 BC.

After 685 BC this was altered. Mountains can't be moved, but the site could be realigned. After 685 BC the site was rearranged (rebuilt) on an axis which celebrated a new horizon direction for the ending of the era in 747 BC. (The horizon location of the setting of the zenithal Sun remained the same.)

The solution of using the axis of a site to point to a horizon location at right angles will be seen again at **Teotihuacan**, built 400 years later, where it is quite obvious. A thousand years later the Maya use the site axis of their centers and the axis of individual structures for the same purposes. I have no data on axial alignments of most other sites of the Olmec coastal area or the Valley of Mexico, since I lack specific site maps.

Alignments pointing to April 19, 1492 BC, occur at the Olmec sites of **San Lorenzo**, **La Venta**, and **Cerro De La Mesas**, and can also be implied for **Laguna de los Cerros** and **Tres Zapotes** -- all conformed to a 30-degree axial inclination. These also occur at three sites in the Valley of Mexico. At the important site of **Cholula** in the Valley of Mexico, the horizon location for April 19 is defined under the condition of the current inclination of the Earth's axis.

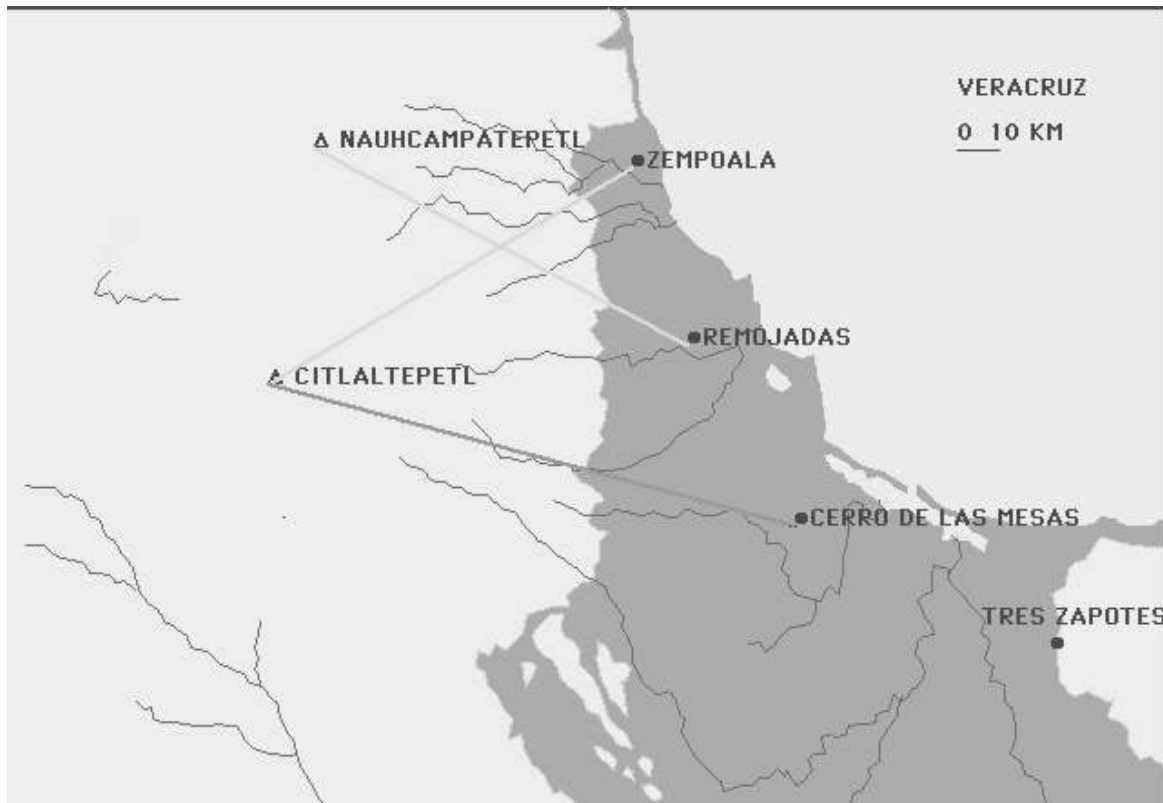
But it could be suggested that after 685 BC the alignments pointing to April 19 (15.22 and 15.32 degrees n of w), which were in use almost universally at other sites, and correct for the era before 685 BC, could have been reassigned for the era after 685 BC to designate the date of August 13 (15.49 degrees). [\[note 14\]](#)

Other Olmec and Valley of Mexico Sites

I have looked at site alignments for the additional Olmec sites along the coast, **Tres Zapotes**, **Cerro de la Mesas**, **Remojadas**, **Zempoala**, and **Laguna De Los Cerros**. (Nothing interesting was originally found at **Laguna De Los Cerros**.) I also looked at the Valley of Mexico sites of **Tlatilco**, **Tizatlan**, **Ciocuilco**, **Tlapacoya**, **Cholula**, and **Teotihuacan**.

I expected somewhat of a logical progression of alignments among the Olmec sites, and a later progression in the Valley of Mexico. I expected to see the abandonment of alignments for ancient era-ending dates, and an adoption of newer era-ending dates. Nothing like that came clearly to light. What is seen

instead is a continued, although somewhat sporadic, use of the alignments for the older era-ending dates (3114 BC, 2349 BC, 1492 BC and 747 BC), some of which almost seemed to have become mandatory, and a genuine confusion of the dates from the year 685 BC. A few notes on some sites follow.



[Image: Cerro De Las Mesas, Remojadas, and Zempoala Olmec sites, and the alignments to nearby mountains. After Vincent H. Malmstrom, "Cycles of the Sun, Mysteries of the Moon" (1997).]

Tres Zapotes

- **Tres Zapotes** (18.4667 north; 95.4333 west) Founded sometime in the centuries well before 1000 BC, **Tres Zapotes** became a regional center after about 900 BC, coinciding with the decline of **San Lorenzo Tenochtitlan**. **Tres Zapotes** was completely abandoned by AD 900.

Tres Zapotes site identity:

The site-identity alignment consists of an angle of 19.67 degrees north of east for a sunrise over **Volcan San Martin Tuxtla**. This represents the day the Sun passes directly overhead on August 13 of the previous era (before 685 BC), at 19.67 degrees north of east, rising out of a volcano.

Tres Zapotes era markers:

The angle of 11.41 degrees south of east with **Cerro Santa Martha** (Veracruz) represents the era-ending for 747 BC (11.02 degrees), conformed to the previous axial inclination. (Although it could represent April 19, 1492 BC, conformed to the current era.)

In addition **Tres Zapotes** recognizes both July 9th, the day Jupiter expanded in 685 BC, and July 25th, when the plasmoid struck the Sun. The first date with an alignment with **Nauhcampatepetl** for a summer sunset of July 9th, the second date is signaled with two alignments, one as a sunset over **Cerro San Martin**, and the other as the antipodal value of this over **El Chichon**. All of the horizon locations define dates according the previous axial inclination of 30 degrees.

Tres Zapotes discussion:

Considering that **Tres Zapotes** is a very old site, and may have taken over the ceremonial functions of **San Lorenzo**, it may perhaps be expected to find alignments for the era-ending for February 28, 747 BC conformed to an axial inclination of 30 degrees. But to also find alignments for July 9th, July 25th, and August 12th all conformed to a 30-degree axial inclination, makes little sense if the founding of **Tres Zapotes** was after 747 BC but before 685 BC.

The alignments at **Tres Zapotes** are complex. We could ask, How did the Olmecs do this? The Olmecs had the Tzolkin calendar and a heightened sense of geography. And they were not primitives. They had lived in these regions for thousands of years. And they had hundreds of years to locate and select sites for ceremonial centers. It is, in fact, only the major ceremonial centers which managed to adorn themselves with all the important alignments.

If two mountains could be found which coaxially represented, for example, an era-ending date in conformity to either an axial inclination of 30 degrees or 23.5 degrees, then the line connecting them defines a series of possible sites. A location along this line could be found which might indicate additional important horizon locations. Given a hundred years to do this, and a fine sense

of geography, this is not all that difficult. I'll present further details of this site in the next chapter.

Cerro De La Mesas

- **Cerro De La Mesas** (18.7167 north; 96.15 west) "hill of the altars" is an archaeological site in Veracruz, in the Papaloapan river basin. It was a prominent regional center from 600 BC to AD 900, and a regional capital from perhaps AD 300 to 600.

Cerro De La Mesas site identity:

The Sun passes overhead on August 12th, which is also the August 12 era-ending for 3114 BC for the era before 685 BC, but there is no mountain at 19.73 degrees for an alignment.

There is an alignment with **El Chichon (Chiapas)** which constitutes an antipodal alignment for a summer solstice sunset in the current era. This is the first instance of a solstitial alignment, but it may be a coincidence.

Cerro De La Mesas era marker:

There is an alignment with **Volcan La Malinche** defining a sunset on April 19, 1492 BC (15.32 degrees), and an antipodal alignment with **Cerro Santa Martha** (Veracruz), also for April 19 (15.81 degrees), both conformed to a 30-degree axial inclination.

Additionally there is a summer sunset over **Ixtaccihuatl** which defines an antipodal winter sunrise for February 28th, 747 BC (11.04 degrees), also conformed to a 30-degree axial inclination.

Cerro De La Mesas discussion:

Here at **Cerro De La Mesas** we see the first summer solstice, but for the current era. Because all the other alignments are based on an axial inclination of 30 degrees, I think this solstice alignment is a coincidence. There will be two other solstice alignments among the 13 sites, but both will be conformed to a 30-degree axial inclination.

Remojadas

- **Remojadas** (18.9833 north; 96.3167 west) is dated from 100 BC to AD 800 (perhaps). The site has remained largely unexplored.

Remojadas site identity:

An angle of 31.47 degrees north of west with **Nauhcampatepetl** defines a summer solstice (31.92 degrees) in the previous era, for an axial inclination of 30 degrees. This would be clear evidence of a change in the inclination of the Earth's axis, but I think it is spurious, for all the other alignments are for the current era.

Remojadas era markers:

A complete array of era markers is presented -- September 8, 2349 BC, February 28, 747 BC, July 9th, 14th, and 25th of 685 BC. All of these are presented under the current condition of a 23.5-degree axial inclination.

Zempoala

- **Zempoala** (19.447 north; 96.408 west). Active 100 BC to AD 800. Not well explored.

The era marker dates of September 8, 2349 BC, and February 28, 747 BC, and for July 25th, 685 BC, are all presented with alignments based on an axial inclination of 30 degrees. The site identification consists of a zenithal passage on July 26th, although the alignment is also one of the important dates from the year 685 BC.

The Valley of Mexico

- Malmstrom shows six sites with "solstice alignments" in the Valley of Mexico, including **Teotihuacan**, with alignments to the mountains **Ixtaccihuatl**, **Citlaltepetl**, and **Popocatepetl**.

I have checked alignments against the 5 Valley of Mexico volcanoes and 6 coastal mountains.

- The angle made between any of these sites and the horizon location of sunrise (or sunset) at the solstice would be about 24.9 degrees. None were found.

One exception might be the possible solstitial alignment for the prior era when the Earth's axis was still at 30 degrees, found at **Cholula**, which I think is a coincidence.

- An August 12 alignment after 685 BC would be about 15.6 degrees. None were found, with the exception of the site-axis alignment of **Teotihuacan**.

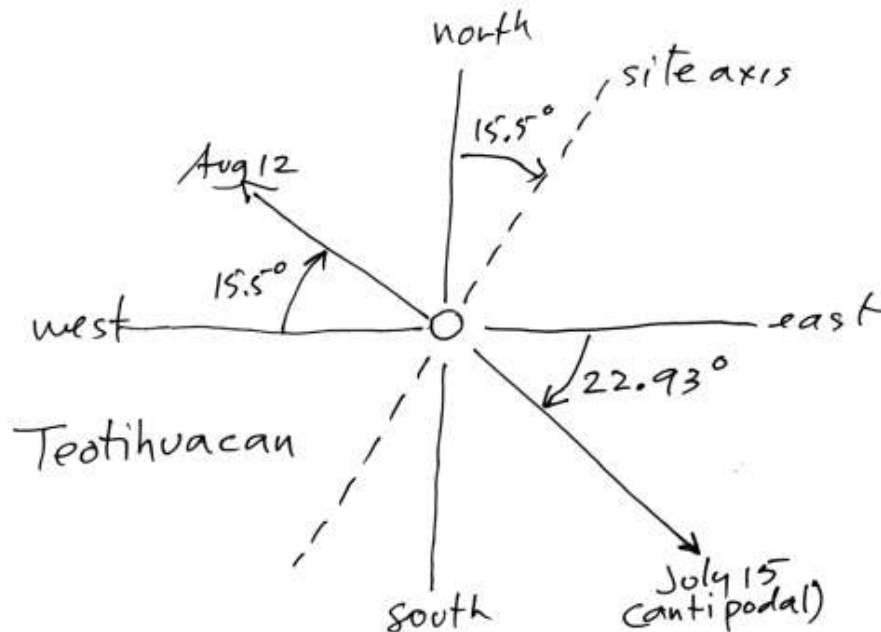
There might be other alignments to August 12, determined by the divergence of the major axis of a site from a cardinal direction, but I do not have site plans available.

- Zenithal passage, between late July to early August, would be at an angle of 19 to 20 degrees. Three were found, including **Teotihuacan**.

What was found instead were numerous "era-ending alignments" -- some 22 for the six sites that were investigated.

The City of Teotihuacan

- **Teotihuacan** (19.683 degrees north latitude; 98.85 west longitude) in the Valley of Mexico, is dated at 150 BC (or 200 BC) and was one of the largest cities in the world, lasting to AD 700, when it was destroyed. The site is offset to the east from directly north by 15.5 degrees.



[Image: Teotihuacan alignments. Plan view. Illustration by J. Cook.]

Teotihuacan site identity:

As mentioned above, on July 25th the Sun passes directly overhead. This is an era-ending marker in addition to being a site identity marker.

Anthony Aveni claims, in *Skywatchers of Ancient Mexico* (1980), that at **Teotihuacan** the Pleiades set at "about" 15.5 degrees north of west after culmination, and in circa AD 150, which would be at a right angle to the Street of the Dead (the main axis of the site).

"To a degree," writes Aveni. This is not even nominally correct, for the date of AD 150 is too early, and the angle is off by 3 degrees. It is not a 15.5-degree normal to the main axis.

The setting of the Pleiades is, in fact, represented with two antipodal alignments -- to **Volcan San Martin Pajapan** (18.65 degrees) and **Cerro Santa Martha (Veracruz)** (18.45 degrees). Both of these are correct for the era of AD 200 to 400. [\[note 15\]](#)

I have identified the existing right angle as an August 12 alignment.

Teotihuacan era marker:

The main street is clearly oriented at a right angle to an August 12 sunset location (15.6 degrees north of west). The Temple of the Sun at **Teotihuacan** forms one side of a giant ballcourt with the horizon location where the Sun sets, on August 12, forming the other side. The Sun is the ball or perhaps the ball player, on August 12.

The site is additionally oriented to a winter sunrise over the near mountain **Citlaltepētāl** in the southeast (which cannot be seen from **Teotihuacan**). This angle with **Citlaltepētāl**, the highest mountain in Mexico, suggests an antipodal sunrise on July 15th (22.83 degrees), and may represent the day after July 14th.

As mentioned above, there are two antipodal alignments to **Volcan San Martin Pajapan** (18.65 degrees) and **Cerro Santa Martha (Veracruz)** (18.45 degrees). Both reflect an alignment for the setting of the Pleiades after culmination on October 20 or 21, Gregorian.

Teotihuacan additional notes:

Curious as this might seem, there are many antipodal alignments to be found at other sites, as at **Teotihuacan**. This type of alignment has been remarked on by archaeologists (who normally pay little attention to things like this). Considering the twist in geometry which is accomplished by having the right angle direction of the main axis at **Teotihuacan** point to an important horizon location, the use of antipodal alignments is not unexpected. Antipodal alignments were first used at the oldest site in this region, **San Lorenzo**, discussed above. The antipodal alignment in this case points in the direction of the angle below (south of) the east-west direction which is equal to the proper angle above the east-west direction. It thus points to a summer sunset in the reverse direction (and two for the setting of the Pleiades).

There is no solstitial alignment at **Teotihuacan**.

Monte Alban

- **Monte Alban** (17.033 degrees north; 96.766 west) is dated from circa 600 BC to circa AD 1100 and is located considerably southeast of the Valley of

Mexico, in the mountains of Oaxaca and on a mountain top. Although it continued to be occupied until the Spanish invasion, **Monte Alban** went into a steep decline after AD 700. Remodeled in about 275 BC to be aligned at 5 degrees east of north, except for one building which retained the original alignment of 15.5 degrees east of north, and thus indicates an original alignment to an August 13 sunset. (from Malmstrom)

Monte Alban used a fixed Tzolkin calendar, starting on August 14, which repeated a smaller portion after the first 260 days. This was related to Malmstrom by archaeologist David Peterson working at **Monte Alban**.

The site's axis angle of 5 degrees east of north is at a right angle to a sunset on the day of September 8 (5.16 degrees sunrise) for the period after 685 BC. There are many alignments for the date of September 8 among Olmec sites and in the Valley of Mexico, both for the current 23.5-degree axial inclination and the prior 30-degree axial inclination. September 8 is an "era-ending" horizon location for 2349 BC -- the "Day of the Dead." It signifies the day of the culmination of the Pleiades in the era before 685 BC, when the axis was still at 30 degrees.

Malmstrom writes:

*"Peterson ... notes that that Mound J, the arrowhead-shaped structure near the southern end of the main plaza, appears to have been constructed to commemorate the azimuth of the sunrise on the days of the zenithal sun passage over **Monte Alban** (May 8 and August 5), the alignment of its original front steps having been 72 degrees."* [\[note 16\]](#)

The alignment of the steps at 72 degrees (azimuth) is 18 degrees north of east. This defines the date of August 4 (August 5 in the quote above), when the Sun overpasses **Monte Alban** at 89.94 degrees above the horizon, rising at 17.89 degrees north of east. It is a marker for the site identity of **Monte Alban**. In the era before 685 BC, with the Earth's axis at 30 degrees, the zenithal passage of the Sun over **Monte Alban** happened on August 16. More on the changes at **Monte Alban** in the following chapter. [\[note 17\]](#)

Monte Alban was certainly the center of fervent intellectual activity in Mesoamerica after 600 BC. The Zapotecs adapted the Olmec calendar to their own philosophies, including the establishment of a fixed calendar which repeated annually, the introduction of a leap day, the placement of a ceremonial center on a mountaintop (which no one else ever did), the development of an

extensive script, application of the Long Count notation, and the adoption of a very characteristic local style of architecture and decor. [\[note 18\]](#)

Rebuilding the site in about 275 BC, from an alignment of 15.5 degrees east of north to an alignment of 5 degrees east of north, was a rejection of the Olmec philosophies, and a return to older, and perhaps local and more correct, traditions. **Monte Alban** was the longest-lived ceremonial center in Mesoamerica, lasting 1700 years until taken over by the Mixtecs in about AD 1100 (to continue an additional 400 years).

Divergent Alignment

There are some groupings of alignments which do not correspond to known dates or easily assigned dates. The problem is that any alignment can generate four separate dates, two in the spring and summer season, and two in the fall and winter season. It might be possible to eliminate two of the dates, if, for example, the majority of a set of alignment angles point south, then the dates which fall in spring and summer could be eliminated.

... 27 and 29 degrees

Alignments at angles of 27 to 29 degrees are associated with 6 sites, but no consistent dates show up. The data follows. All the calculations are for an axial inclination of 30 degrees, since these angles would be out of range for an axial inclination of 23.5 degrees.

site	angle	direction	actual date	actual angle
San Lorenzo	29.78	n of w	July 12	29.60
Laguna d l Cerros	28.35	n of w	July 18	28.34
Cerro d l Mesas	27.96	n of w	July 20	27.94
Remojadas	27.91	s of e	July 20	27.98
Tlatilco	28.74	s of e	July 17	28.83
Teotihuacan	28.84	s of e	July 17	28.88

It might be that the dates of July 17 and July 18, and even July 20, were meant to indicate the date of July 14th, as used at other sites to represent the release of the plasmoid from Jupiter. It could be suggested, for example, that local records of the event were divergent in determining the actual date, since this was an

event which took place in the far reaches of space, and might not have been seen accurately.

On the other hand, the alignments at 27 to 29 degrees are probably all spurious. None of the sites duplicate these horizon locations to have two mountains fall in line for an alignment (a coaxial alignment), as happens frequently at many locations.

The Pleiades

... 13 and 18 degrees

Two other groupings of alignments stand out. Four sites have eight alignments within 0.3 degrees of 13.1 degrees, while five additional sites have seven alignments grouped within 0.4 degrees of 18.6 degrees. All the alignments are oriented along southeast to northwest axes.

The following are the sites with 13-degree alignments:

--- site alignments at 13 degrees ---		
site	angle	direction
La Venta	12.79	n of w
	13.27	n of w
Tres Zapotes	12.56	n of w
	13.39	s of e
Tlapacoya	13.44	s of e
	13.16	s of e
Tlatilco	13.31	s of e
	13.00	s of e
possible dates	-- 30 degrees --	-- 23.5 degrees --
n of e or w	Apr 15, Aug 26	Apr 22, Aug 19
s of e or w	Feb 24, Oct 15	Feb 16, Oct 23

All the alignments point to the southeast or the northwest, and all four sites use coaxial alignments. But the dates make no sense in terms of expected sunsets on important dates.

The following are the sites with 18-degree alignments:

--

--- site alignments at 18 degrees ---					
site	angle	direction			
Teotihuacan	18.65	s of e			
	18.45	s of e			
Cholula	18.48	n of w			
	18.71	s of e			
Tlapacoya	18.93	s of e			
Cuicuilco	18.15	s of e			
Tizatlan	18.66	s of e			
possible dates	-- 30 degrees --	-- 23.5 degrees --			
n of e or w	Apr 26, Aug 15	May 8, Aug 3			
s of e or w	Feb 13, Oct 26	Jan 31, Nov 7			

The "possible dates" listed above are for horizon locations of sunsets and sunrises. None of these make any sense, not even in terms of being off from some likely era-ending date by one or two days. The alignments must have had some importance, for two are coaxial and all point to the southeast or northwest.

What finally clarified these two sets of alignments was the realization that rather than representing sunsets, these two sets represented the setting of the Pleiades after a culmination in the fall of the year. I have already presented this for the city of **Teotihuacan** in the chapter "The Career of Jupiter" under a discussion of the "Day of the Dead." I suggested earlier that the commemoration of the "Day of the Dead" was likely initiated by the very influential site of **Teotihuacan**, and was codified to a calendar date (day of the seasonal year) after AD 200, when **Teotihuacan** was founded. The celebration remained located at the same (Gregorian) date of October 20th, into the Spanish era after AD 1550. With the introduction of Catholicism, it was moved to November 1st and 2nd.

Culmination of the Pleiades - Mexico City, 19.41 deg n latitude					
year	Julian	Gregorian	midnight culmination	--westerly setting-- azimuth	deg n of w
685 BC	Oct 15	Oct 8	83.5	283.3	13.3 <--
600	Oct 16	Oct 10	83.8	284.6	13.6 <--
200	Oct 17	Oct 14	86.5	285.8	15.8
100	Oct 18	Oct 16	86.2	286.7	16.7 <--
AD 100	Oct 19	Oct 18	87.3	287.1	17.1
200	Oct 20	Oct 20	87.7	288.1	18.1 <--
400	Oct 21	Oct 22	88.1	288.7	18.7 <--

700	Oct 23	Oct 27	89.5	290.7	20.7
1000	Oct 25	Oct 31	91.4	292.0	22.0
1550	Oct 30	Nov 9		294.2	24.2
2008		Nov 14		295.3	25.3

The five sites using an 18-degree alignment (for the AD 200 to 400 era) are all located in the Valley of Mexico. This represents five of the six sites I looked at. The celebration, of course, recalled the event of 2349 BC, what the Maya called the end of the "third creation" and we call the "flood of Noah." The angle north of the west cardinal direction, where the Pleiades set, only slowly moved further north. Similarly, the culmination increased its height at **Teotihuacan** until at about AD 700, when **Teotihuacan** was destroyed, it passed directly over **Teotihuacan** at midnight (for what that anecdote is worth).

If **Teotihuacan** set the celebration of the "Day of the Dead" in the period of AD 200 to AD 400, was there an earlier commemoration day, before the setting of the Pleiades on their culmination night had moved to 18.5 degrees? My first guess would be that the Olmecs at **San Lorenzo**, **Tres Zapotes**, or **La Venta**, who had instituted the earliest era-ending markers might have done so. This seems to be correct, for by the time **Tres Zapotes** and **La Venta** were constructed, alignments are not only secured to recognize the date of April 19, 1492 BC, and February 28, 747 BC, but also to the location of the setting of the Pleiades at 13 degrees north of west, the location directly after 685 BC, marking the era-ending of 2349 BC. (And, as I will suggest below, also for an angle of 16.7 degrees, representing the setting of the Pleiades in about 100 BC.)

San Lorenzo has no such alignment. Besides the Olmec sites of **Tres Zapotes** and **La Venta**, two additional sites in the Valley of Mexico also use this alignment, **Tlatilco** and **Tlapacoya**. **Tlatilco** was apparently an Olmec outpost, and **Tlapacoya** also shows strong Olmec influences. Both are quite old, first occupied after 1500 BC. Both have alignments conformed to an axial inclination of 30 degrees. Strangely, **Tlapacoya** also has an 18-degree alignment, but not an alignment for April 19th.

... 16 to 17 degrees

The first thought would be that the alignments (for an axial inclination of 30 degrees) of 16 to 17 degrees should be combined with 15.3-degree alignments for the era-ending of April 19, 1492 BC (as Malmstrom and Aveni would have been likely to do). There are seven instances of alignments between 16 and 17 degrees, of which I have identified two as representing an alignment other than

the setting of the Pleiades. The remaining five are distributed over three sites, one at **Laguna De Los Cerros** and two at **Tres Zapotes**, both in the Olmec coastal region, and two at **Tizatlan** in the Valley of Mexico. The directions of the alignments are coaxial at both **Tres Zapotes** (pointing northwest), and at **Tizatlan** (pointing southeast).

site	angle	direction
Laguna d l Cerros	16.71	n of w
Tres Zapotes	16.58	n of w
	16.43	n of w
Tizatlan	16.64	s of e
	16.36	s of e

The multiple alignments at two of the sites indicates that the alignments may have been significant. Since the alignment at **Laguna De Los Cerros** breaks the tie as to whether spring/summer or fall/winter dates should be used, I will select a spring/summer date. All three sites are quite old. **Laguna De Los Cerros** was settled between 1400 and 1200 BC; **Tres Zapotes** dates from before 1000 BC.

The solution here too, is to suggest that these alignments do not point to a date (which could be April 21) but to the setting of the Pleiades in about 100 BC. This would have been at 16.7 degrees north of west (this is marked on the chart of the Pleiades culminations above).

Tres Zapotes has alignments for February 28, 747 BC, and for July 9 and 25th, 685 BC, and additionally an alignment for a zenithal passage of the Sun on August 13th -- all conformed to a 30-degree axial inclination. Adding four alignments for the setting of the Pleiades, two for a date of 685 BC to 600 BC and two alignments for about 100 BC, salvages the unexpected lack of earlier era-ending alignments. But note that the setting of the Pleiades is conformed to a 23.5-degree axial inclination. That means it was developed after 685 BC -- in fact, probably in about 100 BC.

At **Tizatlan** there already exists an antipodal alignment for the date of April 19, 1492 BC. We can now suggest two additional alignments for 2349 BC, as the setting location of the Pleiades in about 100 BC. **Tizatlan** also has an alignment for July 14th, conformed to the era before 685 BC.

Thus the setting of the Pleiades in 100 BC is a solution to the angle of 16.7 degrees north of west. It would assume the existence of an authority, similar to the authority of **Teotihuacan** which had set the standard for the celebration of the horizon setting of the Pleiades after AD 200. This may have been **Tres Zapotes**. The dates agree with the period of activity at **Tres Zapotes**. (See the chapter "The Day of Kan.")

... a history of the culminations of the Pleiades

At this point we have a great number of instances which can be identified as marking the culmination of the Pleiades. The sequence should point to a history of the ceremonial centers. But of course old forms can be reinstituted, and established forms can be used for a long time beyond their currency. The codification of the "Day of the Dead" by **Teotihuacan** in circa AD 200 or 400 lasted to AD 1550. So the list should be used carefully. Below the list of Pleiades culminations is reproduced, with various sites inserted as appropriate.

Culmination of the Pleiades - Mexico City, 19.41 deg n latitude					
year	Julian	Gregorian	midnight culmination	--westerly setting-- azimuth	deg n of w
original	Sep 15	Sep 8	76.1 deg	275.6 deg	5.6 <--
-	Remojadas	(current era sunset, 5.2 deg, Oct 8)			
-	Cuicuilco	"			
-	Tlapacoya	"			
-	Cholula	"			
-	Zempoala	(prior era sunset, 6.7 deg, Sep 8)			
685 BC	Oct 15	Oct 8	83.5	283.3	13.3 <--
-	La Venta (2)				
-	Tres Zapotes (2)				
-	Tlapacoya (2)				
-	Tlatilco (2)				
600	Oct 16	Oct 10	83.8	284.6	13.6
200	Oct 17	Oct 14	86.5	285.8	15.8
100	Oct 18	Oct 16	86.2	286.7	16.7 <--
-	Tres Zapotes (2)				
-	Tizatlan (2)				
-	Laguna de los Cerros				
AD 100	Oct 19	Oct 18	87.3	287.1	17.1
200	Oct 20	Oct 20	87.7	288.1	18.1 <--
400	Oct 21	Oct 22	88.1	288.7	18.7 <--
-	Teotihuacan (2)				
-	Cholula (2)				
-	Tlapacoya				
-	Cuicuilco				
-	Tizatlan				

-- The entry "original" can be used for all years before 685 BC.

I should point out that September 8 was a hard and fast date before 685 BC, to mark the setting of the Pleiades at the break of day, as it had for all the time prior to this date in September of 685 BC.

Directly after the nova event of 685 BC, because the dome of the stars moved with respect to the horizon, the Pleiades culminated on October 8th. The corresponding sunset (note) location for this date was used by four sites (with **Zempoala** using September 8th). An equal number of sites used the alternate setting location of the Pleiades after 685 BC instead of the sunset location for that day. By October the setting of the Pleiades (284 degrees azimuth) and the setting of the Sun (264 degrees azimuth) no longer corresponded.

I suspect that **La Venta** initiated this use of the setting location of the Pleiades, and **Tres Zapotes** in the Olmec area followed, followed in turn by two Valley of Mexico sites, **Tlapacoya** and **Tlatilco**.

The corrections of circa 100 BC seem to have been initiated by **Tres Zapotes**, which may have recognized the significance of this horizon direction which had already been available to **Tres Zapotes** for 600 years. It may indeed have been accepted by **Tizatlan**, but finding this horizon location at **Laguna de los Cerros** may be accidental, since **Laguna de los Cerros** has no other alignments except two suspicious looking alignments of July 14 -- two of them, coaxial, with one antipodal.

It is also obvious that after AD 200 the city of **Teotihuacan** imposes the latest correction, setting the celebration of the culmination of the Pleiades to October 20 or 22. This is accepted by 4 other sites in the Valley of Mexico, but not in the Olmec region. October 20 remains the accepted date for the "Day of the Dead" until AD 1550, after which the Catholic Church moves it to coincide with All Souls and All Saints days in November.

Altogether with the initial sunset location representing October 8th, and with numerous changes and corrections over the course of about 900 years, there are 25 alignments celebrating 2349 BC.

Summary of Alignments

Below is a summary by the era-ending dates. I have excluded **Izapa** near Guatemala, **Edzna** in the Yucatan, and **Monte Alban** in Oaxaca, which were discussed above, but which were not tested against other local mountains. Both the Olmec sites and the Valley of Mexico sites are listed from south to north in two groups. Zenithal alignments are also listed below.

Alignments for various era-endings at 30- and 23.5-degree inclinations.		
site	30-degree inclination	23.5-degree inclination
----- Olmec Sites -----		
San Lorenzo	zenithal	(same)
	April 19, 1492 BC (2)	----
La Venta	zenithal (2)	(same) (2)
	August 13, 3114 BC ?	
	April 19, 1492 BC (2)	----
	February 28, 747 BC	February 28, 747 BC (/)
	----	July 9, 685 BC (?)
	----	Pleiades, 685 BC (2)
Tres Zapotes	zenithal	(same)
	August 12, 3114 BC	
	April 19, 1492 BC (?)	----
	February 28, 747 BC (?)	----
	July 9, 685 BC	----
	July 25, 685 BC (2)	----
	----	Pleiades, 100 BC (2)
	----	Pleiades, 685 BC (2)
Laguna de los Cerros	----	July 14, 685 BC (2)
	----	Pleiades, 100 BC
Cerro de la Mesas	Zenithal	same
	August 12, 3114 BC	----
	April 19, 1492 BC (2)	----
	February 28, 747 BC	----
	----	solstice (?)
Remojadas	----	September 8, 2349 BC
	----	February 28, 747 BC
	----	July 9, 685 BC
	----	July 14, 685 BC
	----	July 25, 685 BC
	solstice (?)	----
Zempoala	zenithal	(same)
	September 8, 2349 BC	----
	February 28, 747 BC	----
	July 25, 685 BC	----

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----- Valley Sites -----

Cholula                zenithal                (same)
-----                -----
-----                September 8, 2349 BC
-----                April 19, 1492 BC (2)
solstice (?)          -----
                        Pleiades, AD 200 (2)

Tlapacoya              August 12, 3114 BC ?    -----
-----                September 8, 2349 BC
February 28, 747 BC    -----
-----                July 9, 685 BC
                        Pleiades, 685 BC (2)
                        Pleiades, AD 200

Cuicuilco              August 12, 3114 BC (?)  -----
-----                September 8, 2349 BC
-----                April 19, 1492 BC (2)
February 28, 747 BC    February 28, 747 BC
July 9, 685 BC          -----
July 25, 685 BC        -----
                        Pleiades, AD 200

Tizatlan               zenithal                (same)
August 12, 3114 BC ?    -----
April 19, 1492 BC      -----
July 14, 685 BC        -----
-----                July 26, 685 BC (?)
-----                Pleiades, 100 BC (2)
-----                Pleiades, AD 200

Tlatilco               equinox                 (same)
August 12, 3114 BC      -----
April 19, 1492 BC (2)   -----
February 28, 747 BC     -----
-----                July 26, 685 BC (z)
-----                Pleiades, 685 BC (2)

Teotihuacan            zenithal                zenithal (July 26)
-----                -----
-----                August 12, 3114 BC
-----                July 14, 685 BC
-----                July 25, 685 BC (/)
-----                Pleiades, AD 200 (2)

                        (/) -- site axis used for the alignment
                        (?) -- uncertain allocation
                        (2) -- two instances
                        (z) -- no mountain, zenithal

```

ck 1/10

How good are these statistics? I have compared 13 sites (not counting **Izapa** and **Edzna**) with 11 mountains and found 70 coincidences (plus three questionable values), all falling within a third or a half of a degree for the dates listed above, counting alignments for a zenithal passage only once. Consider that, if there

were no attempts to line up sites with significant mountains, the alignments would have been randomly distributed over 365 days. Instead, 52 of the sunset alignments fall on 6 days in two eras of differing axial inclination, thus on a total of 12 days. Twenty alignments to the setting of the Pleiades fall on three dates.

What if some of the alignments were assigned to the incorrect date? This might be suggested for alignments close to 15 degrees, which I have assigned to an April 19th date under the condition of a 30-degree axial inclination. These would then be added to the alignments for an "August 12" date under the current axial inclination of 23.5 degrees -- for a total of 11 alignments assigned to August 12th. There would still be 70 coincidences.

I found only one solstitial alignment for the current era, at **Cerro de la Mesas**. But it might be suggested, similar to the above, that any of the alignments close to 25 degrees, now assigned to July 9th (23.5 degree axis), should all represent solstitial alignments -- a total of 9 solstice alignments, all assigned to the current era. There would still be 70 coincidences.

I doubt if either of these possibilities is an error. I think what is most convincing of the reality of these alignments as era-ending markers, is the frequency of occurrence of the 1492 BC date of April 19th -- 16 instances -- and the 747 BC date of February 28th -- 10 instances. These occur first at the two oldest sites, **San Lorenzo** and **La Venta**, for the condition of an axial alignment of 30 degrees. Even more convincing, is that in addition to the four instances of alignments pointing to October 8, 2349 BC, which are listed above, an additional 20 alignments can be assigned to the setting of the Pleiades after culmination.

For every one of these 13 sites, there are 11 possible mountains to test for significant alignments. Thus there could have been as many as 11 significant alignments. But three alignments per site is the average. Five of the 11 sites use three alignments. Away from the average, two sites each use 2, 4, or 5 alignments, one uses one, one uses six. Here I am not counting alignments for the zenithal passage of the Sun, or the setting of the Pleiades.

Among the sites tested there is obviously disagreement over the date on which the most recent era ended. The changes of July, 685 BC, were confusing. But the world had definitely changed. The question was, did the previous era end on July 9th, when Jupiter showed himself again, on July 14th, when he released a

plasmoid, or on July 25th, when it landed and seemed to move Mars away from Earth?

There are 22 alignments which make attempts to establish a date for the era which ended or changed in 685 BC. To the possible dates which could have been used, we must add August 12, which is the equivalent calendar date of July 26th between the two eras. At any latitude within a degree or so to 19 degrees north, the sunset for August 12 when the axial inclination was 30 degrees, is within a half degree of being identical to the sunset for July 26 for an axial inclination of 23.5 degrees. This identity has no utility, however.

Each of the dates of the year 685 BC was selected an equal number of times, except that July 25th was selected 7 times, and the alignments for the dates were as readily "assigned" to the era before 685 BC of the 30-degree axial inclination, as after. Final agreement was probably reached under the hegemony of **Teotihuacan**, after 200 BC.

It is also clear that almost all sites picked either to align their important era-ending dates to an axial inclination of 30 degrees or an axial inclination of 23.5 degrees. Only a few sites (**Cuicuilco** and **Tlapacoya**) mixed alignment for different axial conditions as convenient to the mountains or volcanoes which could be used.

La Venta stands out as an example of a site caught in the midst of the change of the axis in 685 BC, which was resolved by creating a new alignment through a reconstruction of the site. This reconstruction (and also the later massive rebuilding of **Monte Alban**) demonstrates how important these alignments were.

History

The general history of the course of events seems to have run as follows: **San Lorenzo** was the first site to use both a zenithal alignment and alignments for a certain date in the past, in fact, for a date prior to the founding of **San Lorenzo** which represents, as we know from Eastern Mediterranean sources, the calendar date of the Earth shock preceding the Exodus of Moses. All the Mesoamerican sites I have looked at, with rare exceptions, also institute alignments to the horizon location of the setting Sun for this date in 1492 BC.

In the following chapter, "The Day of Kan," I will show that the tradition started at **San Lorenzo** had its genesis in similar activities in the **Soconusco** region of Guatemala at an earlier time. The tradition was one of assigning "primacy" to a single site in a region for a certain period. "Primacy" allowed the site to dispense lordship to other sites, offer the insignias of power, and provide copies of the "Books." The *Popol Vuh* has repeated references to this for the lords of the Guatemalan sites of the **Quiche**.

Primacy passed to **Tres Zapotes**, after it was terminated at **San Lorenzo** in about 900 BC, but **Tres Zapotes** was devastated by some calamity, at which time primacy passed to **La Venta**. **La Venta** was established after the Earth shock of 747 BC and the change in the length of the year. It was **La Venta** where the Long Count was initiated, and thus the book called "the Council Book."

Within a hundred years **La Venta** was caught up in the change of the Earth's axis of 685 BC. The site was rebuilt to a new central axis, aligned at a right angle for the new horizon location representing the date in 747 BC. All later sites in the region also added this alignment.

The Long Count allowed retrocalculating the date of the end of the "second creation" of 3114 BC, August 12 or 13, and the date of the end of the "third creation" (Noah's flood) of 2349 BC, as the setting location of the Pleiades. A number of sites also add the setting of the Pleiades in (after) 685 BC as an alignment, like **Tres Zapotes**, **Tlatilco**, and **Tlapacoya**. **Tres Zapotes** is Olmec, the other two sites are "Olmec influenced." **Tres Zapotes** adds this initially as October 8, like **La Venta**, reflecting a setting location for the Pleiades shortly after 685 BC, then two more alignments are added for a setting location at about 100 BC.

As a result it could be suggested that the celebration of 2349 BC was probably instituted at **La Venta** as the horizon location of the setting of the Pleiades after culmination. It should also be obvious that an interest in the event of 2349 BC was probably initiated with the return of Jupiter which was witnessed in 685 BC, duplicating the earlier return from the dead of Jupiter in 2349 BC.

The alignment for 2349 BC was adopted by other Olmec sites. The alignments previously established at **La Venta** for the dates of 1492 BC and 747 BC remained, although they were no longer valid. As mentioned above, for 747 BC a new alignment was established.

But more important, the Long Count and the "Council Books" provided a record of actual dates in 685 BC which could be claimed as significant in recording how the Sun "left its path" and returned, and how Jupiter saved the world from destruction. The dates show up as various later alignments, and are specifically referenced five times in the Maya *Chilam Balam* (most as intervals).

When the period of primacy for **La Venta** ended (in 334 BC), it passed back to **Tres Zapotes**, or may have gone elsewhere, possibly to **Monte Alban**. It was at **Monte Alban** that an ideographic script was devised which would have been used to elucidate the "Council Books" and the other books of ancient history (mentioned in the *Popol Vuh*) which in turn allowed access to the information by other tribes.

In AD 224 primacy passed to **Teotihuacan** which held it until circa AD 700. **Teotihuacan** was enormously influential, and spread its doctrines (concerning alignments) into all of the Valley of Mexico, back into the Olmec coastal region and the Yucatan Maya region, as at **Edzna**.

Teotihuacan redefined the celebration of the "Day of the Dead" to the then current horizon location of the setting of the Pleiades in AD 200 or 400. This date remained in use into the Spanish era, 1200 years later. From **Monte Alban** and **Teotihuacan** the information of the past was promulgated to other tribes, so that there was a choice of what significant alignments could be used for any location.

I'll provide additional historic details, as it can be gleaned from alignments and sculptures, in the chapter "The Day of Kan."

Endnotes

Note 1 --

The single solstitial alignment in the current era was for **Cerro De La Mesas** (24.90 degrees n of e, antipodal). I also found two suspected solstitial sunsets for the previous era, **Remojadas** (31.92 degrees n of w) and **Cholula** (31.94 degrees n of w).

At **Cerro De La Mesas** all 5 other alignments are for the previous era. At **Remojadas** all 5 other alignments are for the current era. At **Cholula** six other

alignments are for the current era. Since none of these solstitial alignments match the era for the other and more frequent alignments of these sites, I feel safe to dismiss all of them.

[\[return to text\]](#)

Note 2 --

We cannot speak to most of the religious practices of Mesoamerica which first show up in Olmec times, in 1500 BC to 400 BC, for we do not know what they involved. However, we can penetrate some of the symbols left behind. The cloud altars, the giant stone heads, the jaguar images, and the jaguar babies can all be explained in reference to celestial planetary phenomena. Close passes of Mars in the 8th century BC would have brought hurricane winds and tides to the neck of Mexico where the land is less than 150 miles (240 km) between two oceans. Giant continuous lightning bolts were also experienced, although much further north. Mars was perhaps represented by the bat-image Jaguar, and a source of supreme terror. After 800 BC, I would expect that Mercury was the "Jaguar Baby."

However, a "presentation" scene of a were-jaguar infant spread on the lap of an adult is seen also at **San Lorenzo**, carved into an altar, and thus probably dating to before 900 BC. As such, the "Jaguar Baby" might represent an earlier appearance of Mercury and Mars starting in about 1935 BC.

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Note 3 --

The inclination of the Earth's polar axis (with respect to the normal of the orbital plane) shifted from 30 degrees to 23.5 degrees in 685 BC.

Names of Katuns in the rotating 13 Katun series are named after the last day of the Katun. For the Katun ending after 685 BC (astronomical, Gregorian) this is 3-Ahau (6.4.0.0.0).

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Note 4 --

The actual calculation finds the difference in Gregorian calendar days for 14 Tzolkin periods. This is 12.4 days, and matches the change in the Gregorian calendar for a setting sun of a zenithal passage for the latitude of **Monte Alban**

or La Venta.

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Note 5 --

The rising or setting Sun moves only by small increments along the horizon from day to day as the summer (or winter) solstice is neared. With the passage of each day before the solstice the Sun rises at a lesser fraction of a degree north of east. It takes 16 days to move the last degree. This much movement would, however, have been noticed, for the Sun would have moved two Sun diameters. I think eyeball sightings can be much closer than two degrees. A finger held at arm's length subtends one degree, which is twice the width of the Sun.

If there was any sloppiness in the measurements, it would suggest that the reason for selecting the alignments was religious and not intended as a demonstration of priestly skills at geometry or its use as the basis for calendar recalculation. But the measurements are in fact very close -- often within a quarter of a degree, and seldom as far off as a third of a degree. We know that the calendar was never, ever, recalculated. The sloppiness allowed by Malmstrom contradicts his suggestion that the alignments were needed for calendar calibration.

It might be suggested that Malmstrom meant that stepping away from the center of a ceremonial center would not move the sunset location by more than 2 degrees. This might be true for the Maya ceremonial center which used sightlines to nearby structures, but for Olmec ceremonial centers, which were located many miles from the target mountains, this could not be true. Consider stepping sideways by 20 feet from the sightline to a mountain which was located 20 miles away. The angle of view would not change by more than 1/100th of a degree, **$\arctangent(20 / (20 * 5280)) = .010$ degrees**. The mountains used for alignments were often 100 to 200 miles away. One would have to move a mile away from the center of the ceremonial center to reach a mismatch of a half degree if the mountain were 100 miles away, **$\arctangent(5280 / (100 * 5280)) = 0.57$** .

In *Cycles of the Sun, Mysteries of the Moon* (1997), Malmstrom remarks on the observations of Venus in Mesoamerican Maya and Mexican records, and notes that it is easier if the Mesoamerican (Tzolkin) calendar is used. He records the periodic rising of Venus out of the volcano Orizaba (Citlaltepetl) east of **Cholula** in about AD 830 to AD 1454 (the period of investigation by Malmstrom).

In a later paper, "The Role of Venus in Mesoamerican Calendrical Origins" (nd) (at <http://www.dartmouth.edu/~izapa/Venus.html>), Malmstrom argues for a start of the Tzolkin calendar in 1359 BC at **Izapa**, coinciding with a helical rising of Venus "over Volcan Tajumulco" at 66 degrees, 35 minutes azimuth (23.4 degrees north of east). He also suggests that the 365-day Haab calendar came into existence a few decades later at **Izapa**, with the helical rising of Venus in 1324 BC, at 22.41 north of east, "nearly over Tajumulco."

Let me point out that this rising of Venus "over" or "nearly over" Volcan Tajumulco is off by 7 degrees -- nearly two hand-spans at arm's-length. That is not "nearly." Additionally, the skies and the year were radically different in 1359 BC (although Malmstrom would not know this), so that retrocalculations using today's parameters will not yield sensible results.

have already established that the Tzolkin originated in its present form on September 6, 2349 BC (Gregorian equivalent). The original Haab (360 days) dates from April 19, 1492 BC (Gregorian equivalent), and the modified Haab (365 days) dates from February 28, 747 BC, as has been detailed in a previous chapter.

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Note 6 --

There are some considerations with respect to the inclination of the Earth's axis (discussed in Appendix "Change in the Axis") which might affect this data, although mostly the impact remains the same.

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Note 7 --

I originally assigned an angle of 6.6 degrees to April 2, but it was not supported by anything except the possibility that perhaps the blazing of Venus started on this date. It also does not fit the Mesoamerican notion of celebrating the concluding date of events, and not the starting date.

Since any angle above or below the east-west axis can generate four calendar dates, the next guess was September 8th. This made much more sense, because it would reflect the second day after the fall equinox. The equinox before 685 BC fell on September 6th. Since September 8th was the night when Jupiter had returned from the dead, and the Pleiades would reach culmination, it was a short

reach to suggest that this was probably the commemoration of the closing date of the "third creation" in 2349 BC -- the celebration of the "Day of the Dead".

This also solved the problem of why there were otherwise very few *sunset* alignments for this date. After 685 BC the culmination of the Pleiades, as a celebration of the return of Jupiter from the dead, immediately moved to October 8 (September 21 plus 2 days plus 15 days), and then started to drift further into the fall season with the precession of the equinoxes, which had started in 747 BC. Almost everywhere in the world, it is the culmination of the Pleiades at midnight which marks the "Day of the Dead," not a calendar date.

Thus the reason there were few alignments corresponding to a sunset for a date of September 8th (before 685 BC) or October 8 (after 685 BC) is due to the fact that the sites changed to marking a setting of the Pleiades rather than a setting of the Sun -- at some sites for the date of October 8th, representing the setting location directly after 685 BC, and at other sites for the date of October 21 or 22, representing the setting location in about AD 200 to 400. This accounts for 15 "2349 BC" alignments among 9 of the 15 sites. The calendar date of October 21 or 22 was apparently set by **Teotihuacan**, and was still in use 1300 years later when Cortez met up with the Aztecs.

There are also five sunset alignments (rather than the setting of the Pleiades) for September 8th to signal the culmination of the Pleiades before 685 BC.

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Note 8 --

Anthony Aveni, in *Skywatchers of Ancient Mexico* (1980), assigns the invention of the 260-day Tzolkin to the site of **Copan**, located at a 14.85 degrees north (similar to the latitude of **Izapa**), where the Sun overpasses the site on August 13, and again 260 days later on April 30. **Copan** as the source of the Tzolkin seems even more unlikely than **Izapa**.

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Note 9 --

A look at a table of latitudes and zenithal dates, reproduced in the 1979 book by Malmstrom, has August 13 missing. Yet this is followed immediately with the statement "*The zenithal sun makes its southward passage over latitude 14.8 N on August 13.*"

Table 3 - Dates of Zenithal Sun Positions within Mesoamerica
(Chapter 4, "Cycles of the Sun, Mysteries of the Moon")

Latitude [degrees]	Southward	Northward	Days Elapsed	
			N-S	S-N
-----	-----	-----	---	---
13.5	August 17	April 26	113	252
14	August 15	April 27	110	255
14.5	August 14	April 29	107	258
15	August 12	May 1	103	262
15.5	August 10	May 2	100	265

Using my Qbasic program, I get the following values:

Dates and elevation for zenithal Sun			
Latitude [degrees]	Day of zenithal		Elevation of the Sun
-----	-----	-----	-----
14.5	August 15		89.24 degrees
14.5	* August 14		89.56
14.5	August 13		89.89 <---
15	August 13		89.39
15	* August 12		89.71
15	August 11		89.97 <---
15.5	August 11		89.52
15.5	* August 10		89.83
15.5	August 9		89.86 <---
* -- Malmstrom's table values (1976)			
<--- day of zenithal overpassing			

As can be seen from the above, my calculations for each of the three latitudes are late by a day. Thus, although I assign "August 11" to Izapa, it may be August 12. But it is not August 13.

I am using a latitude of 14.90 degrees north (established by others and published). By comparison, Malmstrom uses a latitude of 14.8 degrees. This inches the overpassage close to August 12, but not August 13. The difference between 14.9 and 14.8 degrees of latitude represents a difference of about 7

miles (11 km). The site, which is spread over a long swatch of land running from SSW to NNE, is only 1.4 miles (2.25 km) in length.

I get the following for the zenithal angle of the Sun on various dates using 14.9 degrees latitude, compared to Malmstrom's use of 14.8 degrees latitude:

Zenithal passage of the Sun at Izapa (14.90 degrees latitude)		
date	angle above horizon	
-----	-----	
August 13	89.49 degrees	
August 12	89.80 degrees	
August 11	89.87 degrees	<----
Zenithal passage of the Sun at Izapa (14.8 degrees latitude - Malmstrom)		
date	angle above horizon	
-----	-----	
August 13	89.50 degrees	
August 12	89.90 degrees	<----
August 11	89.77 degrees	

Use of a latitude of 14.4 degrees north would have guaranteed the date of August 13, with the Sun reaching 89.99 degrees above the horizon. But that is a location 39 miles (63 km) further south.

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Note 10 --

I have noted in previous text that the surpluses of maize from a single farming family could feed 20 additional people for a year. These surpluses were put to use to build, expand, and maintain ceremonial centers. It is a process which could have easily expanded from the communal support of a single shaman (or "day-keeper," as they are called today).

The growth of ceremonial centers was voluntarily supported by the population, for the benefits were visible and obvious. Of greatest benefit would be the fact that the surpluses, which would normally be used for a labor force and trade contacts benefitting the ceremonial center, could be used to sustain the citizens through years where unexpected frost or lack of (or excess) rains would have

destroyed crops and caused a famine which an individual family would not have been able to endure.

The agricultural surpluses are also key to understanding the abandonment of sites. If a drought or other adverse climatic conditions lasted three years or more, a farming family would move away to find a better environment, for the support from a ceremonial center could not be extended indefinitely. With the severe social strictures in Mesoamerica against the accumulation of wealth, a relocated farmer would also have cut down his planting to just cover the needs of his immediate family.

The same results would be seen if the shamans, for whatever religious reasons, abandoned a ceremonial center. The farmers who remained behind would also cut back maize production, both for social reasons and because no one wants to do unneeded farming.

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Note 11 --

When I use the phrase "Gregorian equivalent," it should be realized that for years before 747 BC this represents spreading the 365.24 days of our current Gregorian calendar over 360 actual seasonal days, and without allowances for leap days.

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Note 12 --

There are 44 volcanoes in Mexico, 40 of them on the mainland. The list of mountains and volcanoes, which I have used to check alignments in the Valley of Mexico and the Veracruz region, have excluded volcanoes north or west of **Paricutin Cono** (19.46 n, 102.2 w).

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Note 13 --

Alfred de Grazia, in *The Lately Tortured Earth* (1983) writes:

"One perplexed writer suggested that the Mesoamerican Olmecs aligned their structures with the Big Dipper. When neither the north-south axis nor the solar behavior nor a constellation fits the orientation, then it is that the

ancients could not tell directions well, or that the matter in any case was not important to the builders."

"What is absent from such reasoning? First, there is a failure to appreciate that the desire to orient to the skies was an obsession, a compulsion, an inescapable tradition, a sacred obligation, a proud duty. Second, the ancients, as far back as we can discover their humanity, could calculate readily and exactly the course of heavenly bodies and orient themselves thereto. Many examples of this are presented in de Santillana and von Dechend's book, Hamlet's Mill."

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Note 14 --

The zenithal sunrise of August 14 (18.93 degrees s of e) for before 685 BC, could also be used to point to the era ending date for 3114 BC (19.36 degrees n of w). But I doubt if that was so. Although the ending (day 13.0.0.0.0) of the previous era could be found by retrocalculation, the fact that it would represent August 13 of 3114 BC (4-Ahau 8-Cumku), suggests that a 365.24-day year would have been used. It is an unlikely mistake to be made directly after 747 BC, when the Olmecs certainly would have known that the year previously was 360 days, not 365.24 days.

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Note 15 --

Aveni also claims the Pleiades would have risen helically on the first day of the zenithal passage of the Sun, which would be May 17 (the second passage is July 25). Aveni has May 18th.

But for **Mexico City** in AD 150, on May 17, the day the Sun passes overhead, the Pleiades stand at an altitude of 19.5 degrees above the horizon as the Sun rises. They do not rise with the Sun (that is, helically), as Aveni claims. I have April 22 for the helical appearance of the Pleiades.

I used the location of the Pleiades for **Mexico City**. This can be done because the difference in latitude between **Mexico City** and **Teotihuacan** is 0.267 degrees, resulting in a change in the setting location of the Pleiades along the horizon of only 0.26 degrees.

Aveni's book contains a lot of erroneous data, including calendar dates and horizon azimuthal measurements. For my purposes, an alignment which is off by one degree is totally unacceptable. As noted, I am generally holding alignments to 0.3 degree.

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Note 16 --

Malmstrom also writes,

*"Peterson also notes that the side walls of one of the oldest structures at **Monte Alban**, Mound K, are oriented to the sunrise positions on March 9 and October 5, which he suggests reflects the Zapotecs' method of defining a 52-day interval before and after the zenithal sun passages at **Izapa**."*

I think this has nothing to do with **Izapa**. It is just unlikely that a location of such importance and independence as **Monte Alban** would have anything to do symbolically with the remote site of **Izapa**. The "52-day interval before and after the Izapa zenithal" is 53 days after August 13 (for October 5), and is 51 days before April 30 (for March 9). Because I have not seen these dates in use elsewhere, I cannot attach any significance to them. It is possible that they show up in the Peten, where **Monte Alban** might have had a larger influence.

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Note 17 --

Anthoni Aveni, in *Skywatchers of Ancient Mexico* (1980), mentions (from the research of others) that a staircase of Building J aligned with Capella in about 250 BC, but notes that Capella's helical rising would have coincided with the date of the zenithal passage of the Sun.

Alfred de Grazia, in *The Lately Tortured Earth* (1983), references Anthony Aveni, in *Archaeoastronomy in Pre-Columbian America* (1975), as claiming that many sites in Mesoamerica are oriented about 17 degrees east of north, mostly in the Valley of Mexico. He includes **Teotihuacan**, **Cholula**, and **Tula** and some buildings at **Chichen Itza** in the Yucatan. But the axis of **Teotihuacan** is oriented at 15.5 degrees east of north, not 17. Aveni also claims that the site orientation of 50 out of 56 sites he investigated (including Peten sites) were aligned east of north, and claims that Olmec sites are oriented 7 or 12 degrees

west of north. None of this makes much sense, and most of it is dead wrong. This is discussed further in an endnote to the chapter "The Day of Kan."



[Image: Big Horn Medicine Wheel, Wyoming; looking west. USDA Forest Service.]

Similarly the markers outside of the circle of the Big Horn Medicine Wheel in Wyoming are assigned by Aveni (1975) to the summer and winter solstice, plus the rising of the stars Rigel, Sirius, and Aldebaran. We can be sure that these exterior markers were placed in more recent times. But a count of the number of lines radiating from the center of the wheel reveals 28 spokes, which places its original construction to before 3147 BC. The exterior marker which is removed away from the circle is today aligned with the summer solstice, but would also have pointed to the contact with Saturn in the North Atlantic.

Some of the alignments determined by archaeologists seem far-fetched in that some are taken across the center marker, and some across two exterior markers, sometimes through the centers, at other times along the edges. I am reminded of Gerald Hawkins, who, in *Stonehenge Decoded* (1965), found 165 alignments at Stonehenge with the rising and setting of the Sun, Moon, and various stars. See also Martin Doutre's analysis of a mass of stones at Waitapu in New Zealand, at

<http://www.celticnz.co.nz> (a local copy [\[here\]](#)), a spoof which will move the science of ancient alignments far into the future.

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Note 18 --

The Zapotec script has been deciphered. (See Javier Urcid *Zapotec Hieroglyphic Writing* (2001).) Urcid points out that it dates from about 600 BC, and is primarily ideographic.

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Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Chapter 33: The Day of Kan.

\$Revision: 42.1 \$ (kan.php)

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I have to add a **warning**: This will be an arcane and difficult chapter, for here I will attempt to trace a 3000-year history of the Mesoamerican ceremonial centers, starting in Guatemala at about 2400 BC. You may want to skip this chapter since it primarily deals with efforts of the Olmecs to trace the past history of important event through the application of the Long Count.

And just as the Olmecs managed to validate their findings, which consisted of locations of the setting Sun along the horizon, (and thus represented anniversary dates of events), so can we, by taking a slightly wider view, reconstruct a history of the primacy of leading ceremonial centers over a span of time possibly starting in 2400 BC. This will reveal the use for the collections of giant stone heads and altars in the Veracruz regions, and the "fat boy" sculptures found in Guatemala.

This chapter therefore continues the investigation into the Mesoamerican site alignments started in the previous chapter. With the previous chapter my main purpose was to check site alignments to mountains and volcanoes among early Olmec sites and locations in the Valley of Mexico. The data showed conclusively that the change in the inclination of the Earth's axis could be verified from site alignments before and after 685 BC, and revealed anniversary dates for every important event of the remote past.

What I will do in the following is to provide a basis for what looks like region-wide concerns about these dates in antiquity which were "determined" by the Olmecs and the people of the Valley of Mexico, with special attention to **Monte Alban**. Additionally I will attempt to integrate the large sculptures (like the

massive heads and altars) into the brief outline of history provided at the end of the previous chapter.

Finding the Day of Kan

Two things stand out, first the notion that new re-creations of Earth fell on the "Day of Kan," and secondly that this happened in a Katun 9-Ahau. Both of these ideas apparently dated from remote antiquity, from the time of the end of the "third creation" in 2349 BC (which I will detail below), and were verified (so to speak) by data of other catastrophic events of the past.

After the Long Count was established, whatever wasn't known about the past could be found through retrocalculation. And it looks like that this may certainly have been done for the end of the "second creation" of 3147 BC, which, however, calculated to 3114 BC. The calendar day on which the world had been recreated was calculated to be August 12.

Teotihuacan (200 BC to AD 700) celebrated both July 25 in the solar year and August 12. This giant city is the primary example of the August 12 alignment achieved architecturally. The city was built on a rectangular grid, with the main avenue aligned 15.5 degrees east of north.

At the center of the main avenue of **Teotihuacan** (called "the Street of the Dead" by the Aztecs) is the giant Pyramid of the Sun (also appropriately named by the Aztecs). The Sun sets directly opposite the Pyramid of the Sun, that is, at a right angle to the Street of the Dead, on August 12. August 12 is the result of a retrocalculation which assumes that the solar year consisted of 365.24 days, not 360 days, as the Olmecs had known in 747 BC. Vincent H. Malmstrom suggests that the date of August 13 (the following day) celebrated the birth of the "creation" of the world in 3114 BC (the end of the "second creation").

The "Day of Kan," was New Year's Day among the later Maya, celebrated on July 26th, and noted by Landa in the 16th century AD, when July 26th actually coincided with a "Day of Kan" on the Tzolkin calendar. But the "Day of Kan" only fell on this day every other decade (at twenty-year intervals). The "Day of Kan" is as much a generic name for the New Year Day, as it is an actual Tzolkin calendar day. "Kan" means maize (as well as "snake" and "sky"). I suspect that, well before 685 BC, the "Day of Kan" was already established as the day a previous creation had been renewed.

After 685 BC, attempts must also have been made to again rationalize the start of the current creation to a "Day of Kan." The rationalization involved the simple suggestion that a day named Kan had fallen 12 days earlier, that is, it fell on July 14, Gregorian, 685 BC (the release of the plasmoid from Jupiter), which is 6.3.4.5.4 17-Chen 2-Kan on the August 13 Long Count (not on the August 11 Long Count).

This concern with the "Day of Kan" was perhaps misapplied science by the Olmecs, but it seems to have taken hold, for I suspect that the massive remodeling of the **Monte Alban** ceremonial center in circa 275 BC, which seems to have revolved around an alignment correction of 12 days, might have been one of the results stemming from this concept. Additionally, the Olmecs and the people of the Valley of Mexico start to align many of the ceremonial sites to the day of July 14th (12 days before July 25). This suggests that something significant had happened on that day. [\[note 1\]](#)

Of course, I am approaching conjecture here. But if I may be allowed to continue (and the following is not conjecture), I would suggest that the Olmecs kept daybooks, like the Babylonians, Egyptians, and other literate people. They could look up the records of the past. The documents of the ceremonial centers in the Valley of Mexico were only destroyed when the Aztecs arrived. The Maya records survived until the Spanish arrived. Only a last-minute transcription to the *Books of the Chilam Balam* has saved, for our benefit, a summary record of the past, dating back thousands of years. The *Chilam Balam* frequently makes casual references to actual dates and time intervals, indicating details which must have existed in the source documents. The *Chilam Balam*, in fact, provides five specific dates (as time intervals) for the summer of the year 685 BC.

What might have happened 12 days before July 25th when the plasmoid bolt of Jupiter ended an era? What comes to mind, of course, is that the plasmoid lightning bolt must have taken some time to travel 484 million miles. The solar wind leaving the Sun travels past the Earth at about 2 million miles per hour. It apparently does not speed up significantly after passing Earth. If a bolt traveling from Jupiter also averaged that speed, it would take 10 days to cross the 5.2 AU distance to the Sun. The Olmecs, by selecting the primacy of the "Day of Kan," for July 14th, in effect are suggesting it took 12 days.

Jupiter probably expanded its coma weeks before the return stroke was released. The specifics of the illustrations which were developed by the Olmecs, and which eventually became the religious iconography of the Maya, would require

that Jupiter was clearly seen and recorded for a reasonably long period. From other alignments adopted after 685 BC, it would look like the date of the initial expanded coma was July 9th. The *Chilam Balam* seems to fully concurs in this selection.

At **Monte Alban** the rationalization of the Tzolkin calendar involved restarting the Tzolkin annually on August 14th. The fourth day of the Tzolkin, 4-Kan, would then fall on August 17th, the day when the Sun had passed overhead of **Monte Alban** in the era before 685 BC, when the Earth's axis was still at an inclination of 30 degrees. And the "Day of Kan," everyone knew, had started the current era, as it apparently had started every change in the constitution of the heavens, or so it was thought.

After 600 BC the August 12 alignment was adopted at many locations -- but so were the three dates in July of 685 BC, and equally the date of September 8, which indicated the end of the "third creation" and constituted the completion of the previous world order. The dates of 1492 BC and 747 BC were known.

The date of the end of the "third creation" (2349 BC) was selected on the basis that it involved a culmination of the Pleiades. Before 685 BC, that happened on September 8th, two days after the fall equinox of September 6th (15 days earlier than today). Directly after the summer of 685 BC, when the dome of the stars had rotated 15 degrees, the culmination occurred on about October 8th, and then started to drift later into the year with the precession of the equinox.

A sunset location, corresponding to the culmination of the Pleiades, was first celebrated, correctly, as October 8th. Four sites use a setting location of October 8th as an alignment. A fifth site uses September 8th as the date of the culmination of the Pleiades -- information correctly gleaned from the Council Books and valid for the era before 685 BC.

Directly after 685 BC, after the Earth's axis of rotation relocated in the dome of the stars, the new culmination of the Pleiades was October 8th, with the Pleiades setting at 13.3 degrees north of west.

This 13.3 degrees north of west was adopted as a horizon alignment by four sites. Three later sites made corrections in about AD 100 to October 16th (at 16.7 degrees north of west), and then in about AD 400, **Teotihuacan** redefined the new setting location of the culmination of the Pleiades for the date of October 22 (at 18.7 degrees north of west). This was adopted by five sites in the Valley of Mexico, and remained in use for the next 1200 years without further

corrections. I should also point out again that each sunset alignment and each of the setting location for the Pleiades was fitted to a mountain or volcano.

The "Day of Kan" for 2349 BC

But what about the "Day of Kan"? I think the obsession of Mesoamerica with the "Day of Kan" can be related directly to the cataclysmic event of 2349 BC, the end of the "third creation," the fall of the Absu, the flood of Noah. From this, and from retrocalculations of the event of 1492 BC, it may have been obvious that any era had to end on the "Day of Kan." Two data points define an infinite set of curves, but for humans the coincidence typically is overwhelming evidence that an established relationship exists.

The *Chilam Balam* relates the "Day of Kan" to the time of the "second baptism," that is, the flood of Noah in 2349 BC. Much later recollections of the Maya of the Yucatan recall a flood which separated two eras. It is also referenced in both the *Popol Vuh* and the *Madrid Codex*. But the *Chilam Balam* is the most specific, assigning it to a Katun 9-Ahau, which can be placed to the Long Count date of 2.2.0.0.4 2-Kan on the August 11 correlation, although the year is incorrect, for it was obviously retrocalculated to fit the July 26th horizon location. It is, in fact, as I have pointed out earlier, the only instance in the whole of the 5200-year Long Count calendar when the "Day of Kan" actually fell on July 26th.

What probably came down from remote antiquity, well before 1492 BC, was information about the end of the "third creation," the event of 2349 BC, what we know as "the flood of Noah." This had been the second "flood" and was a major marker in the histories of people throughout the world. The Israelites understood it as "the flood of Noah." China starts its history at this point. I have detailed this in the chapter "The Career of Jupiter." For the Olmecs, one creation had ended and another one had started up, on the "Day of Kan."

But now consider the following: It is very possible that a Katun 9-Ahau had actually started at the time of the end of the "third creation" in 2349 BC, on the day of the fall equinox, September 6. In which case the fourth day (New Year's Day) would be a "Day of Kan." A separate page of the *Chilam Balam* reads, about the event of 2349 BC:

"And then days of the year were introduced."

It was this event which changed the length of the year from 240 days to 260 days. The 260-day Tzolkin was introduced, on September 6, 2349 BC, using a rotation of 13 days to follow the waxing and waning of the Moon (a coincidence or determined much later) and forming 260 separately named and numbered days to fill the year. It is difficult to imagine how soon this calendar was devised. But once established, the fourth day of the new calendar would celebrate the end of the third creation, and nearly 2000 years later would have become New Year's Day -- and the "Day of Kan," for as always, the fourth day of a Tzolkin calendar rotation is the day named Kan.

It is thus very likely that this "Day of Kan" -- September 9, 2349 BC -- was the fourth day of a Katun named 9-Ahau. That also means that, as had (supposedly) happened in 3147 BC, the previous Katun would have been named 11-Ahau -- the Katun which always represented all of prehistory. This coincidence of ending an era with a Katun 11-Ahau would again be validated in 747 BC, when the same sequence of events would take place.

That was probably as much as was known from the records of the past in 747 BC, when the Long Count was developed, along with the common knowledge that the first day of the new era was the "Day of Kan" and that the previous night had been marked by the culmination of the Pleiades. With the introduction of the Long Count, the Olmecs would, within a hundred years, have been making inquiries into the events of the past. These studies might have started well after 747 BC, however, for the results forthcoming from the inquiries make sense only if the Long Count and the Tzolkin calendar are used with the assumption of a 365.24-day year, not if based on shorter years before 747 BC. [\[note 2\]](#)

The Olmecs did not count in days before 747 BC, they counted and kept records in solar years called "Tuns," and in 20-year periods called "Katuns." It did not matter if the year in previous ages had been 260, 273, or 360 days long. A Tun was a Tun, and the difference between the solar year of 2349 BC and the year 747 BC was 1602 Tuns. The time of the flood, what the *Chilam Balam* called "the second Baptism," was thus 4 Baktuns (4 measures of 400 Tuns) and 2 years in the past from 6.0.0.0.0, February 28, 747 BC. The event could be placed in 1.19.18.0.0. The "Day of Kan" would be 1.19.18.0.4, always the fourth day of a Tun.

Using years of 365.24 days, the above event of 1.19.18.0.4 would fall in 2327 BC. Additionally, the day should have been September 8th, as we know from the

same Mesoamerican sources. But the 2327 BC date falls erroneously on March 2. The second flood had nothing to do with July 26th. Yet this confusion existed.

Here is what was most likely done by the Maya (perhaps during the Classical Era): There was no "Day of Kan" to match a horizon location of July 26th during Baktun 1 Katun 19 Tun 18 (1.19.18.0.4). The solution was to take a cue from the knowledge that the event "must have happened" in a Katun 9-Ahau. And, as it turns out, in the following Katun 9-Ahau, on the day of 2.2.0.0.4, the "Day of Kan" fell on July 26th. This would not happen again in all of time, or at least until well after the present series of Katuns would turn over and restart in AD 2012. The records of the past were changed accordingly, although the new date missed the flood of 2349 BC by 83 years, and the calendar date missed it by more than a month. The *Chilam Balam* reports on the newly determined date as if it was fact. It is the only (obvious) error in dating in Book 10 of the *Chilam Balam*. [\[note 3\]](#)

And here is what most likely actually happened: First, the Tzolkin calendar was started in 2349 BC, in fact it probably started with the day the plasmoid from Venus arrived, September 6, 2349 BC. Another, separate page of the *Chilam Balam*, dealing only with the end of the "third creation," states that "then days of the year were introduced." We can be sure that the people of Mesoamerica had been counting in "Tun" years since 10,900 BC or earlier. It is also obvious (or at least, likely) that after 3147 BC a 240-day calendar consisting of 12 rotations of 20 named days was in use. China's original calendar uses a very similar rotation of 12 against 10.

With the calamity of 2349 BC (and the first appearance of the Moon) an accounting of numbered days was added -- "days of the year were introduced." Thus, to the established calendar of 20 named days, a count of 13 numbers was added, representing a half period of the Moon. This resulted in 260 uniquely named and numbered days. The length of the year had just changed to 260 days. This is the Tzolkin, which fitted the year exactly.

The Tzolkin that we are familiar with started on September 6, 2349 BC. On the third day of the new calendar Jupiter returned from the dead. By this time the smaller plasmoids from Venus had passed, and the turmoil in the sky might have subsided. Thus the third day (September 8th) actually marked the "third creation," and the next day would be "New Year's Day" of the "third creation" of the world. This fourth day was the "Day of Kan," as it always is for the first Tun of a new Katun.

The fact that a Katun and Tun had just started on September 6 (the fall equinox before 685 BC) may be coincidence or it may be purposeful. It can be suggested that a new year normally started at the fall equinox. Since the previous calendar of 240 days rotated through the 20 day names 12 times, a new year would always start on day-name Imix. The fourth day would be Kan.

Since the Olmecs already had a year-count of Katuns (20-year periods) and Baktuns (400-year periods) in use, it is possible that this was actually the start of a Katun 9-Ahau. Otherwise the notion that the "third creation" started in a Katun 9-Ahau might have followed from what had happened in 747 BC, when the Long Count was started at the beginning of a Katun 9-Ahau.

The "Day of Kan" for 1492 BC

I thought initially that perhaps I could just roll back the Tzolkin calendar from February 28th, 747 BC, compensating for the fact that the year was of a different length, and do a search for when in the remote past -- somewhere around 1492 BC -- a Gregorian equivalent day of April 19th would have coincided with a day named "Kan." But this yielded no sensible results. I subsequently considered that perhaps the Olmecs or the people of the Valley of Mexico might already have made the calculations using the Tzolkin and a record of events from antiquity.

I thus checked the Gregorian date of April 19, 1493 BC (-1492 in astronomical nomenclature). It turns out to fall on 4.2.4.5.4 6-Kan (August 11 correlation). The day of April 19 will not again fall on the "Day of Kan" for 22 years before or 25 years after 1492 BC.

Those applying the Long Count obviously had forgotten that the year had lengthened in 747 BC and the retrocalculations were performed as if the solar year had always been 365.24 days long. This would suggest that the retrocalculations for 1492 BC were made sometime after 685 BC.

Note that, as with the date of July 26th, 2349 BC, above, this works out on the August 11 correlation, not the August 13 correlation. The "Day of Kan" of 1492 BC was derived by use of the original Long Count. It also suggests that the notion of a "Day of Kan" came from much older sources. This can be seen, as I have shown, also from the 1492 BC alignments which show up at the oldest site, **San Lorenzo**. [\[note 4\]](#)

The Remodeling of Monte Alban

Consider how important "era-ending" dates were for the Zapotecs, who in about 275 BC made the investment of remodeling **Monte Alban** by completely leveling off a mountain top and reconstructing all the buildings (except one) to face a different direction, so that the end of an era could be pointed to. The "Day of Kan" was held as a sacred truth; it was the name of the day each era had ended or started. [\[note 5\]](#)

Of course, the remodeling of **Monte Alban** does not prove that by 275 BC the 360-day year had already been forgotten. Nor does the introduction by the Zapotecs of an annual version of the Tzolkin calendar, restarting each year on August 14th, so that the 4th day, 4-Kan, would fall on the Gregorian equivalent day when, 400 years earlier (as well as in 275 BC), the Sun had passed directly overhead at **Monte Alban** on August 17th. But being able to use the day number and a day name of Kan to coincide with a zenithal Sun at their sacred location was important enough to the Zapotecs to break faith with all the other tribes in Mesoamerica and refashion the sacred Tzolkin to their own needs. No other tribe ever did that. More on this further below.

The "Day of Kan" for 747 BC

Working backwards with the Long Count notation, no "Day of Kan" can be found at 6.0.0.0.0 for 747 BC, except that a "Day of Kan" follows four days later (6.0.0.0.4) as it always does at the beginning of a Katun. What the event of 747 supplied was the start of an era in a Katun 9-Ahau. It should be noted that the *Chilam Balam* also places the events which follow directly after 3114 BC (or 3147 BC) in a Katun 9-Ahau -- despite the fact that the Long Count date of 0.0.0.0.0 (when retrocalculated on the basis of a 365.24-day year) starts a Katun 4-Ahau.

Although there was no clear "Day of Kan" for 747 BC, the era-ending was celebrated with alignments to volcanoes and mountains at **La Venta, Tres Zapotes, Cerro de la Mesas, Remojades, Zempoala, Tlatilco, Cuicuilco, and Tlapacoya** -- 8 of the 13 sites I investigated.

The Earth shock of 747 BC was not understood to be the end of a creation. The destructive close passes of Mars continued for another 60 years (as they also had preceded 747 BC by 60 years). There is virtually no mention of this event in the *Chilam Balam* and none in the *Popol Vuh*. Instead, it was the events of 685 BC

which are brought forward as the relief from an impending end of creation -- or as an extension of creation.

The "Day of Kan" for 3114 BC

For 3114 BC no actual "Day of Kan" can be found. (I have to use 3114 BC here, rather than 3147 BC.) Of course the fourth day of the new era, 13.0.0.0.4, is 4-Kan.

The suggestion by Vincent Malmstrom is that the various and frequent site orientations of 15.5 degrees north of west all represent the celebration of the start of the current epoch, on August 13, 3114 BC. In an article written in 1981 Malmstrom lists some 20 sites with axial alignments at 15.5 degrees north of west and thus pointing to a sunset on August 12. [\[note 6\]](#)

Of the 13 sites I investigated, 8 have alignments reflecting some aspect of the August 12 or 13 date: **La Venta**, **Tres Zapotes**, **Cerro de la Mesas**, **Teotihuacan**, **Tlatilco**, **Tizatlan**, **Cuicuilco**, and **Tlapacoya**. At **Tres Zapotes**, which may have preceded **La Venta**, the zenithal sun passes over the site on August 13 before 685 BC.

At **La Venta** there are two alignments representing April 19 (15.22 and 15.32 degrees north of west) before 685 BC. These were not corrected after 685 BC, but likely became the markers for an August 12 sunset. It is also possible (but unlikely) that the zenithal passage of the sun on August 14, before 685 BC, reflected in sunsets at 19.35 degrees (n of w) and 19.50 degrees (s of w), might have been meant to represent the date of August 13, but as the day after (thus a New Year's Day).

Only at **Tres Zapotes** or at **La Venta** could the calculations have been made, after the institution of the Long Count, to find the day of the "second creation." To find the August 13 date, shortly after 747 BC, as was certainly done at **Tres Zapotes**, is rather stunning. First, because it assumes that the Olmecs wasted no time in the research potential of the Long Count, and, second that in a very short span of time the original length of the year, 360 days (whose measure was incorporated in the Long Count), had been forgotten.

The "Day of Kan" for 685 BC

Having found, or verified, the "Day of Kan" for three past creations, the scribes and day-keepers seemed to have been satisfied, for these two dates were never again corrected or accessed. A more important problem came forward: What was the day which ended the most recent creation, the events which were witnessed in 685 BC? For this everyone had accurate records, to the day, and certainly for the sunset horizon locations.

We could imagine a conference of scribes, recorders, and day-keepers from surrounding cities and ceremonial centers convened at **Teotihuacan** sometime during these centuries for the purpose of hammering out the theological difficulties. Most sites already had alignments established long ago, selected from four dates in 685 BC, and a large number which recalled earlier era-endings.

The solution seems to have been to move the Long Count up by two days, by dropping what is known as the August 11 correlation for a competing August 13 correlation. This made it clear that the day Jupiter released its plasmoid thunderbolt, July 14, 685 BC, fell on the "Day of Kan" -- 6.3.4.5.4 2-Kan, on the August 13 correlation.

I should note that, considering the sacredness of the Tzolkin, it would seem next to impossible that the Tzolkin could have been moved by two days, as I have described above. More likely the August 13 version arose from an early misunderstanding in its adoption by some tribes, although it would have to be at a time when the Tzolkin and Haab were already widely distributed. Possibly this happened in 747 BC, when some tribes did not acknowledge the two days which were missing because the sun had not risen as the Earth's axis went through a spin.

The Long Count, where it was adopted, was added in each instance of its adoption to an on-going tally of the local Tzolkin calendar. The days of the Tzolkin (and the Haab) are the same sequence in both versions of the Long Count.

The Zapotecs of **Monte Alban** must have worked under the same prohibition of interrupting the calendar. Thus when they switched over to an annual calendar which would restart every year on August 14th, this must have been done when the day 1-Imix, the first day of the 260-day Tzolkin, corresponded to our calendar day of August 14th. This happened only three times in a span of about

2400 years, in 439 BC, 523 BC, and 607 BC. Of these three, the last date listed, corresponds to the first archaeological dating of the site of **Monte Alban**.

The Course of the "May"

"One perplexed writer suggested that the Mesoamerican Olmecs aligned their structures with the Big Dipper. When neither the north-south axis nor the solar behavior nor a constellation fits the orientation, then it is that the ancients could not tell directions well, or that the matter in any case was not important to the builders."

"What is absent from such reasoning? First, there is a failure to appreciate that the desire to orient to the skies was an obsession, a compulsion, an inescapable tradition, a sacred obligation, a proud duty. Second, the ancients, as far back as we can discover their humanity, could calculate readily and exactly the course of heavenly bodies and orient themselves thereto. Many examples of this are presented in G. de Santillana and H. von Dechend's book, Hamlet's Mill."

-- Alfred de Grazia, *The Lately Tortured Earth* (1983)

We can thank the Olmecs for recording for us, in the site selections for ceremonial centers, the alignments of the heavens before and after the 7th century BC, and Vincent H. Malmstrom for pointing these out to us. In the following few paragraphs I will review the changes already noted above and in the previous chapter, but in a broader historical perspective.

The sequence will be based on the fact that the interval between approaches of Venus was known by the people of Mesoamerica to be 52 years in an earlier era. The actual "Venus interval" at various times is detailed in Appendix B, "The Celestial Mechanics."

Munro S. Edmonson, in an essay "Some Postclassic Questions About The Classic Maya," proposes that, at least for Post-Classical and Colonial times, some Maya ceremonial centers were designated as a type of central capital city, for a term of 20 years, that is, the duration of a Katun. He writes:

"The Books [the Chilam Balam books] explicitly say they did. In the Postclassic and later the cycle seat ('may cu') was the primate city of a region. It was not a capital in any normal sense, but rather a holy city,

recognized by the title Born of Heaven ('ziyan can, can sih'), and notable for its sacred ceiba tree ('yax che'), its sacred grove ('tzucub te'), its sacred well ('ch'en'), and its plaza, which was the crossroads ('hol can be') and navel of the world." [\[note 7\]](#)

Edmonson claims that there was a larger cycle consisting of 13 Katuns, an interval of about 256 years, and would suggest that this could be extended back in time. He notes that the period of primacy (the "may") always ends at Katun 8-Ahau. About the abandonments, he writes:

"The Postclassic Maya destroyed the primate city and its road at the end of the 'may.' There are indications that this 'destruction' may have been largely ritual and symbolic, and that the 'abandonment' of the city was an evacuation by the ruling dynasty rather than total depopulation."

"It is of some interest that the first three of these cycles come within three Katuns of accepted dates for the beginnings of the Olmec period, the Middle Formative and the Late Formative respectively, and that the earliest long-count dates of the next two cycles fall outside of Maya country as usually defined (Tres Zapotes, El Baul and Tuxtla)." [\[note 8\]](#)

I do not think we can hold that the later Katun endings used by the Maya could be extended backwards in time to **San Lorenzo** (but likely to the demise of **Teotihuacan**). But the concept of primacy of a single location seems to have existed. However, based on an inspection of spans of occupancy of various sites, I would suggest that we have to use a different cycle, not the rotation of 13 Katuns. Most appropriate, in the era when Venus was the main threat, this might have been an interval of periods of 52 years. As it turns out, a period of ten 52-year periods seems to have been in use -- 520 years -- which equals two cycles of 13 Katuns. Why this particular span of time? I do not know. The causes are lost in prehistory, but it seems to have had a certain urgency.

It has been estimated that **San Lorenzo** was destroyed and abandoned in about 900 BC. The first Baktun and Katun ending in 8-Ahau after about 900 BC is 868 BC. Additionally, **San Lorenzo** was only in use after 1440 BC. If we use the first Baktun and Katun ending in 8-Ahau after 1440 BC, which is 4.9.0.0.0, 1367 BC, then the span of time to 868 BC is two cycles of 13 Katuns -- 520 years.

As it turns out, this cycle of 520 years can be readily traced forward (and backward) in time, to include, for example, the well-dated site of **Teotihuacan**.

This 520-year period also hints at the fact that the previous era might have used the same measure. I will address this further below. Thus the primacy of **San Lorenzo** was from 1367 BC through 868 BC, when it was destroyed and abandoned. [\[note 9\]](#)

With the establishment of the Haab calendar (of 360 days) after 1492 BC, the people of Mesoamerica recognized a "world ending" date, when the same day name and number on the Haab and Tzolkin calendars recurred -- a period of 52 years (initially using years of 360 days). This interval became high science for the Olmecs, as well as all the later people of Mesoamerica, and it had a certain numerological beauty. In fact, I suspect that the whole of calendrical history after 1492 BC, when the Haab calendar was established, lies suspended between math and magic. As I have pointed out in an endnote to the chapter "Language and Causality," colonial native documents which propose to reveal the history of the region in deep antiquity, as for example, the *Annals of Cuahitlan*, make claims to ages of the world which are uniformly reported as products of 52 and 13 years and their differences.

We have no evidence that Venus might have aligned with Earth at regular 52-year intervals after 2193 BC. I have shown, in fact, that the period would have dropped to 47 (solar) years after 2193 BC, and was 50 years between 1492 BC and 1442 BC. (See Appendix B, "Celestial Mechanics.") Yet the expected end of the world was still celebrated at 52-year Haab intervals at the time of the Spanish invasion in the 16th century AD, even though by this time the dates of the "52-year round" had not coincided with alignments of Venus probably for over 2000 years. Except, of course, that Venus would still be seen rising at the same horizon location every 52 "years" on the Haab calendar.

I dislike numerological analysis of ancient history, but, considering the seriousness with which the Mesoamerican people seem to have approached this subject -- to the point where almost all of the Maya monuments deal exclusively with time periods and Katun endings -- it might in this instance be appropriate. I'll follow Edmonson's suggestion of the existence of the "may," but I will not use a single cycle of 13 Katuns (260 years), but a period of 2 cycles of 13 Katuns, 520 years ($2 * 13 * 20 = 520$ years). This is also 10 cycles of 52 years, and this is probably what defined the "may" in remote antiquity. I'll start with the second "may" in order to settle some dates and practices.

The Second "May" at San Lorenzo, 1367 BC to 847 BC

In Veracruz the oldest Olmec site, **San Lorenzo**, dating from around 1440 BC, shows two alignments with the mountains **El Chichon** and **Zempoaltepec**, for a date of an April 19 sunrise and sunset, recalling the start of the era after 1492 BC (actually the end of the previous era). An additional alignment with **Popocatepetl** signals the day (sunset) that the Sun passes directly overhead, on August 15. These alignments are for an axial inclination of 30 degrees.

I would suggest that the site of **San Lorenzo** was significant to the Olmecs in preventing the repetition of attacks on Earth by the planet Venus after 1492 BC, or, more likely, after 1440 BC (or 1442 BC). The giant heads excavated at the site would then represent Venus. A new head would be carved every 52 years (or 52 Tun-years) as Venus was expected to approach the Earth again, to be used in some preventive ceremonies, and buried when the crisis had passed. Starting after 1367 BC and extending to about 900 BC, some 10 or 11 giant heads would then have been carved and disposed of. Dates can be selected as multiples of 52 years, starting from 1492 BC. Even if the dates are not correct, dividing the 520-year span of time of the "may" by 52 yields an estimate of 10 heads. Ten heads have been found. [\[note 10\]](#)

The actual "Venus cycle" after 1440 BC was probably 50 years -- if it existed at all. But the 360-day Haab had been devised, and the Olmecs were thoroughly convinced that the appearances of the celestial Gods followed their calendar. We also have no evidence suggesting that Venus was ever again involved in another catastrophic electric contact with Earth after 1442 BC.

What I am suggesting is that the celebration of the "52-year interval" was most likely entirely ritualistic and based only on calendrical considerations. Thus, although the actual Venus cycle varies from 47 to 52 years, I have used a Venus cycle interval of 52 years throughout most of the chart presented below. For the period of 2193 BC to 1492 BC I have used an interval of 47 years. This would be suggested from the fact that there was no Haab calendar until 1492 BC, and the intervals might represent actual sightings of Venus and would be counted in Tun years, representing solar years of whatever length.

About the heads, I would further suggest that they were indeed intended to resemble Olmec ball players (after all, Venus bumped the Earth like a ball player in 1492 BC), and may additionally be wearing flayed human faces as a

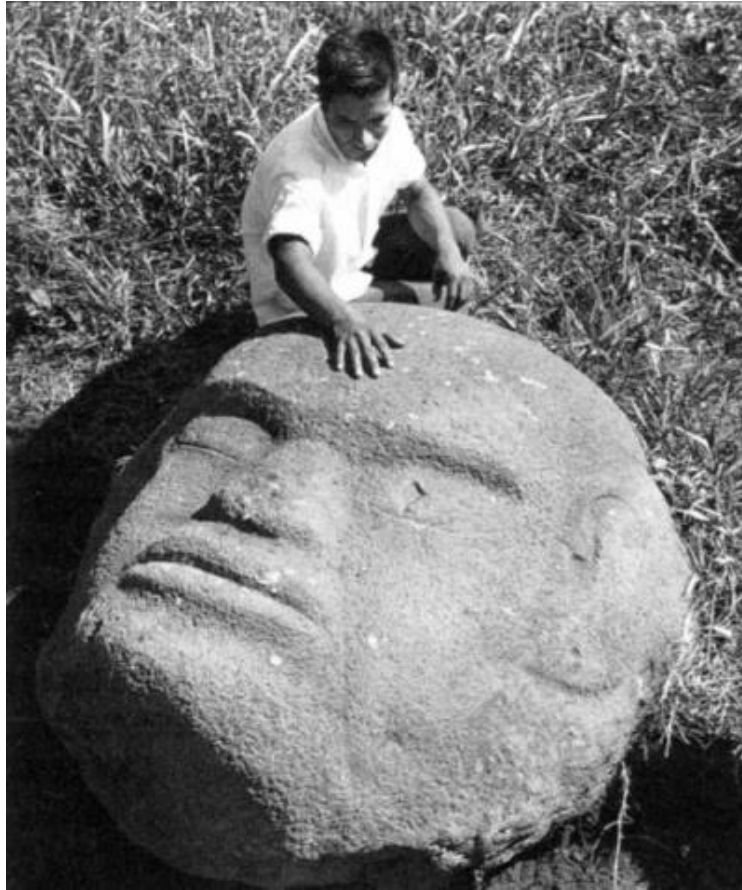
mask, which last would account for the swollen lips and flattened nose. There is no question that the Olmecs played games with a rubber ball. That has been archaeologically established. A mask designates a person as representing a God, as is clear from contemporaneous and later iconography. That flayed human faces were depicted seems clear also from an inspection of smaller sculptures, shown with eyes in deep outlined sockets, incised lines along the left and right sides of the faces, flattened noses, and rolled back lips. A mask, or wearing a mask, was, since the Olmec era, the disguise of a God. [\[note 11\]](#)

After 520 years of preventing disaster, the site of **San Lorenzo** became irrelevant, and in about 900 BC the ceremonial center was destroyed and abandoned. I would suggest the year of 847 BC, the end of a "may," a period which will fit exactly between an earlier and many later "may" periods. First then, a look at an earlier period.

The First "May" at Monte Alto, 1887 BC -- 1367 BC

If **San Lorenzo** then held its period of primacy for "10 periods" of 52 years on the basis that some previous site had also held its primacy for an identical period of time (and was destroyed), what site was this? We do not really know, but it would have to be a site with an occupation dating back to about 2000 BC.

A likely site might be located in the **Soconusco** region of Guatemala, along the Pacific coast and in a tropical region similar to Mexico's Veracruz. This includes **Izapa**, **El Jobo**, **Abaj Takalil**, **Chocola**, **Chukumuk**, **Kaminaljuyu**, **El Baul**, and **Monte Alto**, all of which are located along a 120-mile coastal strip (in that order). All the sites share the same art style, and share this with **Tres Zapotes** in Veracruz. Some sites are dated to have had their start in the period of 1850 BC to 1650 BC, thus 200 to 400 years before the establishment of **San Lorenzo**. But dates to 2000 BC have also been suggested.



*[Image: Stone head ("Monument 1") from Monte Alto, Guatemala.
After Michael Coe, "The Maya" (2005).]*

What is of interest is that 11 large undated carved heads or rotund bodies with heads ("fat boys") have been found in a cornfield near **Monte Alto**, the southmost site. Malmstrom describes them as:

"... large rounded boulders, often 1.5 m (5 ft) or more in diameter, were selected as the medium upon which either the rudimentary features of a head or a body were etched out in bas-relief. Only a minimal amount of carving was done, so in all cases the faces have a decidedly bloated appearance and the bodies are corpulent."

"The heads that were depicted tended to have a fairly similar, generic appearance. If they were intended to highlight any individual differences, their sculptors appear to have been singularly unsuccessful, although a few of the heads do have some strikingly unique characteristics."

"The bodies, on the other hand, almost invariably have the arms wrapped around them so the fingers of the hands nearly come together over the fullness of their abdomens, and the legs and feet often do a similar encircling act near the base of the sculpture."

There are other large sculptures in stone in the **Soconusco** region, including heads, turtles, and reclining jaguars. But the collection at **Monte Alto** is amazing and unusual. The oldest of these are estimated to date to 2000 BC.

The collection of "fat boys" suggest that, like at the later **San Lorenzo**, these might represent efforts at staving off the destructions which might have resulted from the passage of Venus at 52-year intervals. The sculptures would have been created over the course of 520 years, the term of the primacy of the site.

Elsewhere I have developed that in 2349 BC and 2193 BC (and in between) Venus made electric contact with Earth. That period would have observed four possible interactions with Venus. What I have also developed, in Appendix B, is that until 1492 BC, Venus would cross Earth's orbit regularly. This would not cause electric contacts, but Venus would have loomed very large in the sky at infrequent intervals. Likely this interval was 52 years, or more likely it was 47 years at that time.

Perhaps the preventive measures were initially (during the period between 2193 BC and 1492 BC) based on observation of a 47-year cycle. After 1492 BC, the Venus cycle changed again, but the newly established Haab calendar could track the interval correctly.

If during some 520-year period ending in 1492 BC the fat boy bodies were carved to coincide with the 47-year intervals, then we could divide 520 years by 47 to find that 11 sculptures would have been carved. Eleven heads and bodies have been found.

Assuming that the primacy of **Monte Alto** indeed extended to 520 years, then it seems that the efforts at the prevention of disasters carried right through the Pacific contact by Venus of 1492 BC which sent tsunamis across the Pacific, reaching to China, and certainly the whole of coastal South America and Central America. This may have been the event which made the shamans of **Monte Alto** conclude that the effectiveness of their services had come to an end. Did this happen in a Katun 8-Ahau?

Another solution, in line with later practices, would be to suggest that the nearest "8-Ahau" closing date after 1492 BC or 1442 BC would be in 1367 BC, the year 4.9.0.0.0 8-Ahau. Baktun 4 and Katun 9 were known, as was the fact that the last day of the Tun was 8-Ahau. Perhaps this showed that a site could only hold its mandate until ten cycles of 52 Tun years had lapsed and 8-Ahau was reached.

Following the event of 1492 BC, the Haab was established, and now a rotation through the two calendars would repeat any Tzolkin and the Haab day name-number every 52 Tun years. The knowledge that, 700 years earlier the potential end of creation had indeed occurred at 52-year intervals, now became the method of choice in warding off the end of creation at **San Lorenzo**. Venus, however, never again crossed Earth's orbit after 1492 BC or 1442 BC, and the interval between approaches after 1492 BC was not 52 years, but 50 years. Actually, it seemed not to have mattered, what the calendars predicted was important.

An Earlier "May" Period in 2407 BC.

If indeed the site of Monte Alto in Guatemala was established in 1887 BC, then we can count another 520 years back from this date. That takes us to 2407 BC, 52 years after the plasmoid of Venus landed in 2349 BC. I have suggested earlier that Venus probably interfered with Earth four times between 2349 BC and 2193 BC. The date of 2407 is the first time Venus would make a repeat appearance after the plasmoid of 2349 BC, and what was known as the end of the "third creation" among the later Maya. If this appearance of Venus involved a destructive interaction for Central America, then the suggestion for repeated possibilities of ending the world every 52 years would be established. Overriding Earth's orbit might have been enough.

In fact, since the period of 520 years seems so obviously to have been established before 1492 BC, it is possible the the prior period, under discussion here, might have started in 2349 BC. This would have been the period ending of the "third creation."

The Third "May" at Tres Zapotes, 847 BC to 747 BC.

It is easier to identify a site which takes on primacy after **San Lorenzo**. The most likely choice seems to be **Tres Zapotes**. The site is located so that a zenithal passage of the Sun happened on August 13 during the time before 685 BC (and rises out of **Vulcan San Martin Tuxtla**). There is also an alignment for February 28, also conformed to the era before 685 BC. Strangely, there are additional alignments, also for before 685 BC, for July 25 (two) and July 9th. I would suspect that the site was relocated advantageously to pick up these additional alignments.

San Lorenzo had performed their last preventive ceremonies in 892 BC. Thereafter, or soon thereafter, primacy passed to **Tres Zapotes** which proceeded to carve the large stone heads for the next expected approach of Venus. I would expect the first in 816 BC and a second in 764 BC -- two heads. Two heads have been found at **Tres Zapotes**. The third expected approach of Venus would have been 712 BC, but that event never materialized, for in 747 BC Mars shocked Earth, and destroyed **Tres Zapotes**. After 747 BC everything changed. [\[note 12\]](#)



*[Image: Rancho La Cobata stone head ("Monument 1"),
11 feet (3.5 meter) high. After micahwright.com]*

It might be suggested that an unusual head ("Monument I"), found at **Rancho La Cobata**, near the site of **Tres Zapotes**, was originally destined for delivery to **Tres Zapotes** for a Venus ceremony in 712 BC, but was never delivered -- because in 747 BC **Tres Zapotes** was destroyed.

Rancho La Cobata is thought to be a stone workshop for **Tres Zapotes**. The head found at **Rancho La Cobata**, and the two found at **Tres Zapotes**, are local and similar in style, differing from those found at **San Lorenzo** or **La Venta**.

The head at **Rancho La Cobata** is absolutely enormous. It stands over 11 feet high, whereas the heads found at **San Lorenzo** vary from 5 feet to 9.5 feet (1.5 to 3 meters) tall and the heads at **La Venta** vary in height from 5.5 feet to 8 feet (2 to 2.5 meters). But what is most unusual is that, unlike all the other heads, it was carved with closed eyelids and with a down-turned mouth similar to the "snarling" down-turned mouths found on the "were-jaguar" sculptures at **San Lorenzo** and **La Venta**. It is the face of a dead person.

This giant 11-foot-high boulder may have represented the death of Venus after the electrical jolt between Mars and Venus in 776 BC. The massive lightning bolt to Venus, which carved the 3000 miles long and five miles deep Valles Marineris on Mars, would have dropped the coulomb charge of Venus. Venus would have gone (even if only temporarily) to dark mode and lost its coma and tail. The lightning bolt (originating at Mars) would have been seen traveling toward Venus for twenty minutes to a half hour.

On the other hand, the bolt from Jupiter in 685 BC also was clearly seen to end the brilliant display of Venus and Mercury, and was likely understood as representing the end of threats by Mars (so reads the *Chilam Balam*), but killed Venus also. This head could thus also be dated to the second occupation of **Tres Zapotes**.

The Third "May" passes to La Venta after 747 BC

However, it seems that after 747 BC **La Venta** became the next center for the prevention of celestial disasters. Actually, **La Venta** had been established earlier, and it may have become the new religious capital by default. The change in primacy was unexpectedly soon, certainly not the 520 years that **San Lorenzo** had been in use.

La Venta became a primary ceremonial center after 747 BC, and certainly a likely founding date for **La Venta**, as a ceremonial center, would be 747 BC. The site was selected to have alignments for April 19, 1492 BC but also for February 28th, 747 BC. The alignments were conformed to an axial inclination of 30 degrees.

What is somewhat strange is the apparent switch at this time from Venus heads to Mars heads. The 52 Tun-year anniversaries were still celebrated, but with "creation" altars.

There would have been five opportunities to carve a head representing Mars (not Venus) and prevent disasters after 747 BC, if the date of 747 BC is included. Certainly Mars was prevented, through whatever ceremonies, from becoming "the God of hell" (as the *Chilam Balam* calls the attempts by Mars at ending creation).

Either four (or five) heads might have been carved before Bolon-ti-ku, Jupiter, called it off in 685 BC. Four heads have been found at **La Venta**. But five "elaborate tombs" have been found at the site, and five large caches of serpentine blocks. (The tombs will be reflected in the five houses used by the Gods of the underworld to keep the *Popol Vuh* twins, Hunahpu and Xbalanque, overnight, in attempts to kill them.)

I only slowly became convinced that the "heads" represented Mars ceremonies, and the "altars" represented Venus ceremonies. I'm inclined to think that the altars, already in use since **San Lorenzo**, represented "renewals of creation" ceremonies. This is still being celebrated today by Maya shamans, using, as earlier an altar oriented to the cardinal directions.

Eight or nine basalt altars have been found. The ninth is not certain. David C. Grove, in "Public Monuments and Sacred Mountains: Observations on Three Formative Period Sacred Landscapes" (*Social Patterns in Preclassic Mesoamerica*, 1999), suggest 8 "altars" for sure, of which five are "table top" versions, six feet (2 meters) high and 12 feet (4 meters) wide (whose "purpose [is] still unclear to archaeologists"), with a projecting upper ledge, and a front niche -- like a cave entrance -- with a seated person. Four of the altars are positioned in pairs, where one has a person appearing from the cave-like opening, and the other is a "presentation" scene, with the person holding a were-jaguar infant. All these altars are located south of the **La Venta** pyramid (the heads and graves are north of the pyramid).



[Image: Olmec stone altars of two types. Both images after Wikipedia, Ruben Charles, under Creative Commons licene.]

The altars are reminiscent of the 'creation' altars built by Maya shamans today. If the Olmec altars celebrated recreations of the world at 52-year intervals, then seven altars would span 747 BC to about 400 BC, when **La Venta** was abandoned. If started in 712 BC, the 6th altar would date to 400 BC. At a height of six feet, these are neither altars nor kingly thrones (as some archaeologists hold), but models of the raised sky. At any rate, only six or seven kings in 350 years is not likely.

Grove also notes that the table-type altars, with the exception of the fifth altar, are always placed in sets of two, the first with a person peering out of the cave, facing the second where another person holds a were-infant on his lap. The

pairing may be a coincidence, although this happened at **San Lorenzo** also. Even though I do not have enough altars, I'll assume that they were created every 52 years as single pieces rather than in pairs.

The theology of the Olmecs changed after 685 BC at **La Venta** as everywhere else in the world. The emphasis changed from warding off Mars to celebrating Jupiter as the God of deliverance. This resolved at **Teotihuacan**, some 400 years later, to considering Quetzalcoatl, Venus, as the savior God through his self-sacrifice. The understanding reached in Mesoamerica of the events of 685 BC was in essence no different from the understanding achieved in the Eastern Mediterranean region. The missionaries who followed the Spanish invasion after AD 1500, quickly understood the philosophical underpinnings of the Indian "idol worship," and at first considered that Christ had perhaps appeared to the Mexica and the Maya independent of his appearance in Israel.

When the inclination of the Earth's axis changed to 23.5 degrees after 685 BC, **La Venta** was remodeled (and the first monumental construction was started), aligning the long axis of the site to be at a right angle to the new horizon location for the date of February 28, 747 BC. The zenithal Sun still set in the volcano **San Martin Tuxtla**. The giant heads and the "number 9 Jaguar" mosaics, all of which were likely created after 747 BC, were retained or relocated.

The carved monuments at **La Venta** clearly recall the events of 685 BC. This is shown in the iconography of stela and engraved ceremonial objects, and, in fact, by the creation of the first pyramid in Mesoamerica. The pyramid, a "red house," is the image of the lower plasma expulsion of Jupiter in 685 BC.

After having prevented the ending of creation in the era after 747 BC, and no doubt continuing with other functions for an additional 300 years, the religious utility of **La Venta** eventually also came to an end. The "may" came to an end. There was no reason to carve additional stone heads. The shamans knew, too, that the site was not aligned with what was now considered the newest location of the end of the previous creation. There were no alignments to the dates of 685 BC at **La Venta**.

When was **La Venta** abandoned for another location? Archaeology suggests 400 to 300 BC. That suggests 7 periods of 52 years after 764 BC, when **La Venta** most likely took over the mandate from **Tres Zapotes**. If we carry the 520-year

period forward from the ending year of 868 BC at **San Lorenzo**, the end of the "may" would fall in 334 BC for **La Venta**.

The Third Conquest

What is interesting, with respect to the status of **La Venta**, is an obscure reference to the ending of the second and third 52-year period at **La Venta** from inscriptions at the Maya site of **Yaxchilan**, 1300 or 1400 years later.

At a number of Maya ceremonial sites, ballcourts are named as "First Conquest," "Second Conquest," and the "Third Conquest," and more frequently just as "Third Conquest." At the Maya site of **Yaxchilan**, three ballcourts are inscribed with a dedication date of October 21, AD 744.

My first guess was that the date of AD 744 might have represented a multiple of 520-year intervals ("may cycles") since some important date in antiquity, especially since dates were in each case appended to indicate the first manifestation of the event significant to each of three ballcourts. The appended dates all point to the seventh century BC. As a matter of fact, AD 744 is 3 times 520 years (1560 years) since the first manifestation of the first colossal head at **Tres Zapotes**, in 816 BC.

"Conquest," as Schele and Freidel note, in *Maya Cosmos* (1993), was originally translated as "Creation" -- creation of the world -- which is probably more correct in the context I am presenting here. Schele and Freidel note that "manifest" might also have been intended. I would easily suggest "Reign."

I have estimated that first, second, and third "Creation Altars" were built at **La Venta** in 712 BC, 660 BC, and 608 BC. These might have been recorded in ancient records as the "first," "second," and "third anniversary" of "creation" or misread as the actual creation dates. Information on these ventures was available to Maya sites through copies of "The Council Book" which, since 747 BC, had recorded events at **La Venta** by Long Count dates.

The distance numbers of the Long Count dates of the three ballcourts are incomplete, so that at best Schele and Freidel could only suggest "1400 years before" the dedication date of the ballcourts in AD 744. That places the dates of the original "First Creation," "Second Creation," and the "Third Creation" in the era when **La Venta** was the center of religious activity. As Schele and Freidel point out, the calculations based on distance numbers do not match the Tzolkin

and Haab day names and numbers of the inscriptions. The three Tzolkin/Haab dates are 13-Manik 5-Pax, 9-Kan 12-Xul, and 1-Ahau 13-Xul.

Using only the two distance numbers referenced by Schele and Freidel in a footnote, Long Count dates can be derived from a dedication date of 9.15.13.6.9 by subtracting the two recorded distance numbers of 3.8.10.14.11 and (3).5.19.0.7, resulting in 6.9.14.6.2 (September 19, 557 BC) for the "Second Creation" and 6.7.2.9.18 (September 2, 608 BC) for the "Third Creation." These match the dates of the fourth altar (for the "Second Creation") and third altar (for the "Third Creation") at **La Venta**, in 556 BC and 608 BC. (I do not know why the cardinal numbers are chronologically reversed.)

The date for the "Third Creation" is correct at 698 BC. This is (or should be) the date of the third altar in a series that was carved at **La Venta**. It would seem from this that a "Third Creation" was thus correctly pinpointed by **Yaxchilan** even though it was not the "third creation" they were looking for. They were looking for the date when the sky had turned red and fallen to Earth in 2349 BC.

The problem with the distance numbers of the three ballcourts (of which I only have two) is that the Calendar Round day names for the remote dates do not match what would be expected from a retrocalculation of the Long Count. We could search the 8th and 7th century BC for significant dates based on the day names. Calendar Round day names repeat every 52 years in the 520-year period (the "may") from Baktun 5 / Katun 15 to Baktun 7 / Katun 1. There are quite a few dates to check. Few of them make much sense. [\[note 13\]](#)

I think the scribes at **Yaxchilan** made a serious mistake. They were looking for the ending dates of the "first creation," the "second creation," and the "third creation," which would have been the years 8347 BC, 3147 BC, and 2349 BC. These three are the recognized completion dates for the "first creation," "second creation," and "third creation" as we know from other sources.

The scribes checked their records, the same records which had been recorded at **La Venta** and transcribed by others, eventually to be confused as the complete history of humanity. Some of the books, without giving dates, indeed did record events dating back thousands of years, but references to the first, second, and third creation were recorded also for ceremonies at **La Venta** in the 7th century BC. The dates were transcribed by **Yaxchilan** without a single thought about the actual scope of history.

More importantly to compound the error, the records might have been "corrected" by the scribes at **Monte Alban** to conform to their particular calendar. This might have kept the years to more or less the same values, but would have jumbled the Tzolkin/Haab day names.

Let's follow this trail in the manner told in the Guatemalan *Popol Vuh*. I would assume that the scribes at **Yaxchilan** derived their information from books obtained from **Monte Alban**, but these books described information originally obtained by **Monte Alban** from **La Venta**. Those same books might repeatedly have been recopied before reaching **Yaxchilan**, but they were held as sacred and true. The books told of how the leaders (of **Monte Alban**) traveled east to the city by the sea (**La Venta**) to obtain their insignias of leadership. Received from **La Venta** were the "Council Book," and books called "The Light that Came from Besides the Sea," "Our Place in the Shadows," and "The Dawn of Life."

The books revealed the most ancient of history, the experience of darkness, the migrations of the tribes, the genesis of the Gods, the founding of the calendar, the "third creation" -- but all from records derived from **La Venta**. The books were probably not transmitted until hundreds of years had passed, and with time the stories they told were taken as the history of those who received the copies.

The Fourth "May" at Monte Alban, 334 BC to AD 179

The dates match. **Monte Alban** was active before **La Venta** was abandoned. It was at **Monte Alban** also where a script was developed. The Tzolkin and Haab calendar was not received from **Monte Alban**, for everyone already had the calendar, as shown by the fact that the August 11 version was in use in both the southern Veracruz region (as at **La Venta**) and in part of Guatemala, whereas the Valley of Mexico and the Guatemalan Peten and the Yucatan region used the August 13 version.

The "may" ended in AD 179 for **Monte Alban**. But **Monte Alban** was not destroyed after AD 179, but held on to AD 700 or AD 1000, after which it was mostly abandoned. By the 16th century AD there was still a priestly college in the Oaxaca region, which seemed to have remained unmolested by the Aztecs.

Interestingly, **Monte Alban** did not go into a decline until AD 700, suggesting that perhaps it held the "may" for two periods, from 334 BC to AD 179, and

from AD 179 to AD 692. This last is the same period when **Teotihuacan** obviously held primacy. Perhaps this is an instance of the regionalization of the "may" since **Monte Alban** was a considerable distance from the Valley of Mexico. Because of my use of the Gregorian (Julian) calendar at this point in time, the "may" since **La Venta** is reduced to 513 calendar years.

The Fifth "May" at Teotihuacan, AD 179 to AD 692

Clearly it was **Teotihuacan** which held the "may" from AD 179, to be abandoned, "conquered," in AD 692. As I have noted, **Teotihuacan** was one of the three largest cities in the world. **Teotihuacan** established a widespread trade network across Mesoamerica. There was a population of **Monte Alban** craftsmen in one of the precincts of **Teotihuacan**.

Following the Post-Classical usage by the Maya, it would seem that by "conquest" is also meant the destruction and abandonment of a ceremonial site after some period of use, as Edmonson has suggested. This has been seen in the case of **San Lorenzo** and **La Venta**, and has recently been suggested for **Teotihuacan** in about AD 700. At an earlier time the destruction had been attributed to the Toltecs who invaded the Valley of Mexico. Today it is attributed to the priests of **Teotihuacan**. Assuming that the cycle of primacy is indeed 520 years, it could be suggested that **Teotihuacan** took on primacy shortly after AD 172. This agrees, in fact, with the archaeology of **Teotihuacan**.

At the beginning of this period, outside of the Valley of Mexico, in Honduras and the Peten of Guatemala, the Maya seriously start up their own ceremonial centers, and start up the celebrations of Katun endings, and any number of other dates which were perceived as important in sustaining the world. These are discussed by Edmonson. The Maya seem to have disregarded the "may" as it was defined in the Valley of Mexico, but retained the concept of a primary regional site. In this respect the Toltecs of Tula may have done the same.
[\[note 14\]](#)

The Sixth "May" at Tula, AD 692 – AD 1219

In the Valley of Mexico it was an invading tribe, the Toltecs, who built and occupied the city which is today known as **Tula** or **Tollan**, and which seems to have held primacy after **Teotihuacan**. **Tula**, however, was not built until after AD 900 and destroyed sometime around AD 1170, after which the primary city of the Toltecs was reestablished elsewhere. Their calendar, however, dates from AD 726. During this period the Toltecs dominated much of Central Mexico. Around AD 900, **Tula** was the largest city in Mexico. [\[note 15\]](#)

When **Teotihuacan** was abandoned in about AD 700, the Pleiades passed directly over the city at culmination. When **Tula** was constructed 200 years later and at a half degree further north in latitude, the Pleiades passed directly overhead of the new ceremonial center.

The word "Tulan" or "Tollan" means "place of the reeds" or "place of the rushes." It had been applied to **Teotihuacan** also, and the later Aztecs applied it to their own city of **Tenochtitlan** (today Mexico City) as well. Not much is known of **Tula** since the Aztecs plundered it for building material and sculptures.

Nine intervals of 52 years had passed since **Teotihuacan** was abandoned, when **Tula** was conquered by invading tribes. The architecture of **Tula** subsequently shows up at the Maya site of **Chichen Itza**.

The Seventh "May" at Cholula, from AD 1219

Cholula was a very large city southeast of the Aztec city of **Tenochtitlan**, and only a little smaller than **Tenochtitlan** in the 16th century AD. Dating from about 200 BC, it lasted to the time of the Spanish invasion. *"Cholula remained a regional center of importance, enough so that, at the time of the fall of the Aztec empire, Aztec princes were still formally anointed by a Cholulan priest"* (Wikipedia).

Cholula probably had a population of near 100,000. The center included the largest pyramid in the world. Cortes reported counting 430 temples (there were only 365). When Cortes arrived, he massacred 3000 nobles and priests of **Cholula** in two hours, to demonstrate the invincibility of the Spanish to the neighboring cities.

The "May" among the Maya

Edmonson suggests that the Maya may have redefined the "may" to a reduced period, as little as a single twenty-year Katun, rotating primacy among 13 prominent sites, although there also was a much longer period. Among the Maya the long 520-year period of the "may" seems to have been defined from the time of the fall of **Tula** (AD 1170, with AD 1204 as the end of the "may").

Edmonson identifies Mayapan of the (Maya) Itza as holding primacy from AD 1243 to 1752, a 509-year period, starting in a year 6-Ahau (20 years after 8-Ahau) and ending in a year 8-Ahau (and thus one Katun short of 520 Tun years), even though Mayapan was deserted during the last 300 years. The Toltecs in the Yucatan (remembered later as the Itza) used the start of the 11th Baktun (11.0.0.0.0) as the start of a "may." Edmonson further shows both the startup and the collapse or abandonment of numerous sites in the Yucatan as coinciding with Katuns ending of 8-Ahau.

It could be suggested that the Classical era Maya sites in the Peten fully expected to last to the end of the next 520-year interval after the "conquest" of **Teotihuacan**, that is, to AD 1212. None of the highland Maya sites did. They all floundered and were abandoned by about AD 900.

Summary

What will be seen in a list of ceremonial centers and cities, is a sequence of events which promotes each city in turn to the status of a major center of activity and extended hegemony for a period of somewhat under 520 years, after which it disappears from view. As a primary center, they were consistently the largest and most populous sites, they conducted trade over nearly all of Mesoamerica, and were widely influential in promoting their architecture and their iconography, and -- we would presume -- their religious ideas.

Over a period of 3000 years, the expectations of the sequence of the "may" in almost all instances matches the archaeological dating, although it is not always quite clear-cut. Some sites are already established at the start of a "may," but others, like **Teotihuacan** and **Tula** spring into existence as new ventures. Probably more important is that **San Lorenzo**, **La Venta**, and **Teotihuacan** clearly were destroyed by the residents or the leadership of the centers. The destruction of **Tula**, although at about the right time for a "may" ending, is today attributed to other invading tribes.

As time progressed, hegemony over the region is expressed more and more with force, culminating with the extreme militarism of **Tula** which extended its control into Guatemala and even into the Yucatan region of the Maya. The later Aztecs took up the concept of military control after the fall of **Tula**, and claimed themselves as their descendents. **Cholula** seems to have avoided militarism, since it existed in the shadow of the Aztec empire.

Abandoning a site after a set span of time is a concept entirely foreign to our way of thinking. It is a disruptive, self-defeating, and senseless gesture, and can only be understood if seen as a religious necessity. The nations of Europe often act the same way, but somehow their religiously based actions make more sense to us.

The following table lists Katuns ending in 8-Ahau and anniversaries of the 52-year Venus cycles, in addition to a few other events. The 52-year intervals, shown below, are based on "Venus cycles" in solar years before **San Lorenzo**, and on 52 calendar years afterwards.

The "years BC" for the 8-Ahau Katuns listed below are corrected by assuming, as would be the case before 747 BC, that the Baktuns and Katuns represented actual years, that is, solar years. This matches dates from the Eastern Mediterranean, where the "BC" notation is also in solar years (today under the assumption of an invariant year length). The 52-Tun-year anniversaries of Venus are shown in BC/AD notation, and are thus approximate. Since the final celebration in the Valley of Mexico happened in AD 1507, my series of 52-year anniversaries, which ends in AD 1472, is off by 35 years near the end. I have added Malmstrom's derived dates for the period after **Teotihuacan**.

Baktun/Katun 8-Ahau ending	corrected date (see note 1)	Venus 52-year cycles marked (*), and other notes (see text)
1.17	2407 BC	possible start of an earliest "may"
	2349 BC	(*) The "flood of Noah"
	2297 BC	(*) 2nd appearance of Venus
	2245 BC	(*) 3rd appearance of Venus
	2193 BC	(*) The fall of Akkad
	(2197 BC #	same as 2193 BC)
	2150 BC #	(*) (see note 3)
2.10	2147 BC	
	2103 BC #	(*)

2056 BC # (*)
 2009 BC # (*)
 1962 BC # (*)
 1915 BC # (*)

3.3 1887 BC the "may" at Monte Alto
 1868 BC # (*) 1st fat boy, Monte Alto
 1821 BC # (*) 2nd fat boy, Monte Alto
 1774 BC # (*) 3rd fat boy, Monte Alto
 1727 BC # (*) 4th fat boy, Monte Alto
 1680 BC # (*) 5th fat boy, Monte Alto
 1633 BC # (*) 6th fat boy, Monte Alto

3.16 1627 BC
 1586 BC # (*) 7th fat boy, Monte Alto
 1539 BC # (*) 8th fat boy, Monte Alto
 1492 BC (*) 9th fat boy, Monte Alto
 The Exodus of Moses; note 4
 1440 BC (*) 10th fat boy, Monte Alto
 End of Middle Kingdom
 1388 BC (*) 11th fat boy, Monte Alto

4.9 1367 BC end of the "may"
 the "may" at San Lorenzo
 1336 BC (*) 1st Venus head, San Lorenzo
 1284 BC (*) 2nd Venus head, San Lorenzo
 1232 BC (*) 3rd Venus head, San Lorenzo
 1180 BC (*) 4th Venus head, San Lorenzo
 1128 BC (*) 5th Venus head, San Lorenzo

5.2 1107 BC
 1076 BC (*) 6th Venus head, San Lorenzo
 1024 BC (*) 7th Venus head, San Lorenzo
 972 BC (*) 8th Venus head, San Lorenzo
 920 BC (*) 9th Venus head, San Lorenzo
 868 BC (*) 10th Venus head, San Lorenzo

5.15 847 BC end of the "may"
 San Lorenzo destroyed ca 900 BC
 the "may" at Tres Zapotes
 816 BC (*) 1st Venus head, Tres Zapotes
 764 BC (*) 2nd Venus head, Tres Zapotes
 the "may" passed to La Venta
 747 BC Earth's orbit changes
 747 BC 1st Mars head, La Venta
 732 BC 2nd Mars head, La Venta
 717 BC 3rd Mars head, La Venta
 712 BC (*) 1st altar, La Venta
 702 BC 4th Mars head, La Venta
 686 BC Mercury Earth shock
 685 BC Nova event and plasmoid of Jupiter
 660 BC (*) 2nd altar, La Venta
 608 BC (*) 3rd altar, La Venta

6.8 591 BC
 556 BC (*) 4th altar, La Venta
 504 BC (*) 5th altar, La Venta
 452 BC (*) 6th altar, La Venta
 400 BC (*) 7th altar, La Venta

7.1 334 BC end of the "may"
 La Venta destroyed, 400 -- 300 BC
 (it is uncertain where primacy passed next,
 may have passed to Monte Alban)
 348 BC (*)

	296 BC	(*)	
	244 BC	(*)	
	192 BC	(*)	
	140 BC	(*)	
	88 BC	(*)	
7.14	78 BC	(Edmonson: perhaps the "may" at Tres Zapotes)	
	36 BC	(*)	
	AD 16	(*)	
	AD 68	(*)	
	AD 120	(*)	
	AD 172	(*)	
8.7	AD 179	end of the "may"	
		the "may" at Teotihuacan	
	AD 224	(*)	
	AD 276	(*)	
	AD 328	(*)	
	AD 380	(*)	
	AD 432	(*)	
9.0	AD 435		
	AD 484	(*)	
	AD 536	(*)	
	AD 588	(*)	
	AD 640	(*)	
	AD 692	(*)	
9.13	AD 692	end of the "may"	
		Teotihuacan destroyed, ca AD 700	
		the "may" at Tula	Malmstrom dates
	AD 744	(*)	779
	AD 796	(*)	831
	AD 848	(*)	883
	AD 900	(*)	935
	AD 952	(*)	987
10.6	AD 948		
	AD 1004	(*)	1039
	AD 1056	(*)	1091
	AD 1108	(*)	1143
	AD 1160	(*)	1195
		Tula destroyed ca AD 1170	
	AD 1212	(*)	1247
10.19	AD 1204	end of the "may"	
		the "may" at Cholula (?)	
	AD 1264	(*)	1299
	AD 1316	(*)	1351
	AD 1368	(*)	1403
	AD 1420	(*)	1455
11.12	AD 1460		
	AD 1472	(*) last Venus anniversary (AD 1507)	
	AD 1519	Cortez massacred 3,000 Cholulans	

Note 1: "Corrected dates" are Baktuns and Katuns as solar years, except that after La Venta (after 747 BC) the interval on our calendar is 513 years.

Note 2: Prior to 2193 the "Venus cycle" consisted of 52 solar years.

Note 3: For the period of 2193 BC to 1492 BC, the "Venus cycle" is based on an interval of 47 solar years, marked #.

Note 4: After 1492 BC I have used a 52-year "Venus cycle."

From this table it would be clear that primacy of a site is concluded after the 10th anniversary of the 52-year Venus cycle, whether the cycle existed in reality or not. This assumes a missing primacy between **La Venta** and **Teotihuacan**, for which I have suggested **Monte Alban**, although **Tres Zapotes** was also revived.

Considering the role played by **San Lorenzo** and **La Venta** in the maintenance of creation and prevention of the destruction of the world for over 1000 years, it becomes obvious that these two sites were very important and influential, and possibly would have set the religious agenda for Mesoamerica for the following 2000 years.

As I have noted earlier, most of the other Olmec sites, and most of the sites in the Valley of Mexico, show the same concern with "era-ending" alignments similar to what was incorporated in the choices for the location of **San Lorenzo**, **Tres Zapotes**, and **La Venta**. The alignments established at **San Lorenzo** and **La Venta** became the minimum required alignments. After 600 BC new "era-ending" alignments are added, reflecting dates from the year 685 BC.

It could be suggested that the older horizon locations (like for April 19, 1492 BC, or February 28, 747 BC) were simply copied from the older sites, except that we start to see these older alignments being conformed to the new axial inclination of 23.5 degrees, just as we also see some of the newer "era-ending" dates configured to horizon locations conformed to the old axial inclination of 30 degrees. This is a truly strange procedure, and it is almost beyond the imagination to attempt to understand how the alignments for the previous era could have been found geometrically. But it is clear that it happened. We also have absolutely no idea what was so important about establishing these site alignments.

Orientation of the major axis of a site would be the easiest method of forcing the "proper" layout of a ceremonial center, one which did not require triangulation with two or more mountains. There might have been many more than the few I have noted. Unfortunately I am lacking axial locations of site orientations except for a few well-studied sites and I may be missing additional horizon alignments because of this.

The alignments used to signal the end of yet another creation were not immediately obvious after 685 BC. Which date to use, and how it reflected new developing theologies, remained a question. Using two revolving calendars which did not match the solar year did not help to resolve this initially. There

were many understandings of what had happened, and many solutions. We also do not know how these calendars were used. Probably the alignments implemented by **Teotihuacan** were adopted by the Maya in the Peten and on the Guatemalan coast, due to the hegemony that **Teotihuacan** exerted over much of Mesoamerica. Again, I have also not followed up on site alignments in the Yucatan or Guatemala. The alignments found for Veracruz and the Valley of Mexico were, I felt, sufficient to establish the importance of site alignments, but especially to demonstrate the change in the inclination of the Earth's axis of rotation.

The events of 685 BC were of course written down. There would have been day books, records of events by years and by days. Narrative versions probably came much later, and likely encompassed all of sacred history, from the first creation onward. The understanding of what transpired in 685 BC probably took many forms. But everything that was told in the narrative could be verified.

What does all this mean? It means that we are dealing here with able historians, excellent geographers, superb observational astronomers, and astute mathematicians. Before the Spanish destroyed all their records, these Stone Age people had the longest continuous historical records in the world, the only accurate record of past celestial events, and the closest observations of the Sun. We only need to get past their quirky concepts of geography, and their strange notions of cyclical time and disregard of the actual length of the year, in order to extract information which other nations of the world have failed to record or make sense of.

Endnotes

Note 1 --

The misapplied science involves the use of the August 13 correlation. It is the only one where the day-names hold up. It differs from the August 11 correlation, which was certainly in use in 747 BC, and had spread with an attached Long Count to Guatemala before 600 BC.

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Note 2 --

The Olmecs, and certainly the later Maya, were perfectly capable of dealing with the 0.24 fractional day. So says Michael Coe. The Maya used ratios to

approach the values of numbers less than one, similar to the Egyptian use of additive fractions in doing division.

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Note 3 --

The association of the "Day of Kan" with the flood of Noah (the fall of the Absu) is not entirely certain from a reading of the *Chilam Balam*. Katun 9-Ahau is clearly identified, however, and this is immediately followed by, "Kan was the day when its burden was bound to it," after which follows, "Then the water descended, it came from the heart of the sky for the baptism of the House of Nine Bushes." It is quite possible that the (supposed) sentence about the "Day of Kan" belongs elsewhere in the text. (All sentence punctuation is missing from the "Chilam Balam" and the order is systematically jumbled.) The fact that the opening "Day of Kan" falls in Katun 9-Ahau, 2.2.0.0.4, would argue against this, however.

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Note 4 --

The use of the August 11 correlation used to find these two day names in remote antiquity is another sign of the disagreements in Mesoamerica about the actual ending date of the era before 747 BC. After 747 BC the Day of Kan coincidences are to be found only with the August 13 correlation.

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Note 5 --

All people do this: find similarities, and assume a connection. We frequently make these connections on a very slim basis. The Olmecs had assumed that a flood would separate recreations of the world, based on the flood of 3147 BC and the celestial flood of 2349 BC, which last had also caused incessant rains and storms. The *Chilam Balam* still acknowledges this connection, offering events surrounding 2349 BC as the "Third Reign." But the Earth shock of 1492 BC had not involved flooding of the scope of the previous era-endings, although the west coastal regions of the America were buffeted with massive tsunamis. With the shock of 747 BC any global flooding was missing, except, of course for the hurricanes due to the electrical arc from a passing planet.

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Note 6 --

Malmstrom in "Architecture, Astronomy, and Calendrics" (*Pre Columbian Mesoamerica Archaeoastronomy in the Americas* - Ray A. Williamson, ed. (1981)), writes:

"From field measurements begun in 1971, Aveni was able to confirm that 50 of 56 sites which he examined were indeed oriented east of north, and that a 17-degree 'family' of alignments did in fact seem to exist (Aveni 1975) [Antoni Aveni, ed. Archaeoastronomy in Pre-Columbian America (1975)]. Aveni also concluded that this particular pattern of orientation seemed to be most prevalent in the Valley of Mexico and he specifically mentioned Tenayuca, Tepozteco, and Tula as sites where this alignment was encountered. (It should be pointed out that Aveni's '17-degree family' of alignments includes orientations as far off as 15.5 degrees, [azimuth of 285.5 degrees, less 270 degrees] for he includes Teotihuacán in this 'group'.)"

I have reproduced a chart of results by Malmstrom further below. Because Malmstrom specifically notes that some of these values have been corrected by him, I do not have confidence in the original data. Malmstrom notes that:

"Aveni has had to dismiss all later sites built on the Mexican plateau having similar orientations to Teotihuacan (such as Tenayuca, Tepozteco, and Tula) as being simply 'non-functional imitations' of the great Mesoamerican metropolis (Aveni 1975)."

It is difficult to believe the chauvinism that a statement like this reveals. Aveni's alignments are reproduced in *Skywatchers of Ancient Mexico* (1980).

STRUCTURES ORIENTED TO ~285 degrees				
General Region			Orientation Measurement	
Site	Time-Frame	Structure	face	degrees source
-----	-----	-----	-----	-----
-- Mexican plateau --				
Teotihuacan	A.D. 0-650	Pyramid of the Sun	Front	*285.5 (M)
Tula	A.D. 950-1150	Temple B	Side	287.1 (A)
Tenango	A.D. 650	Principal Structure	Side	283.7 (A)
Xochicalco	A.D. 650	Temple of Plumed Serpent	Front	286.8 (A)
-- Yucatan --				
Edzna	150 B.C.-A.D. 850	Cinco Pisos	Front	*285.5 (M-D)
Sayil	A.D. 600 (?)	Main Palace	Side	282.4 (A)

Labna	A.D. 600	Temple of Columns: Mirador	Side	282.1 (A)
Kabah	A.D. 600	Codz Pop	Front	283.6 (A)
Mayapan	A.D. 900-1300	Observatory: (152)	Front	282.8 (A)
		Temple of Sacrifices (151)	Side	282.8 (A)
Izamal	A.D. 600 (?)	Platform, Pyramid		
		of Kinich-Kakmo	Side	287.2 (A)
Chichen Itza	A.D. 700-1300	Chicchan Chob	Front	285.0 (M-D)
		House of the Deer	Side	285.0 (M-D)
		Caracol (mid-line -Window)	Front	*284.9-285.7 (A)
Coba	A.D. 600	XV, XVI	Side	285.0 (M-D)
Kohunlich	A.D. 600	Ballcourt (Main axis)		285.0 (M-D)
Chicanna	A.D. 450	Groups C and E	Side	283.0 (M-D)
Becan	A.D. 450	East Group (I, IV)	Side	283.0 (M-D)
		II, III	Front	283.0 (M-D)
-- Belize-Peten --				
Altun Ha	A.D. 600 (?)	Structure A-5	Front	285.0 (M-D)
Tikal	A.D. 200-900	Alignment of Temple		
		I to Temple IV	Front	*285.0 (M-D)
		Alignment of Temple		
		I to Temple V (RightAngle)		15.0 (M-D)
-- Oaxaca --				
Monte Alban	600 B.C.-1100 A.D.	Mound Y	Front	285.0 (M-D)
Huamelulpan	300 B.C.- ?	Main Pyramid	Front	285.0 (M-D)
-- Gulf Coast --				
La Venta	1000-600 B.C.	Stirling "Acropolis" &		
		"Plaza"	Side	*285.0 (B)
<p>note a (*) -- The present author [Malmstrom] has chosen to re-define Aveni's "17-degree family" of alignments as the "15.5-degree family" inasmuch as the principal structures in the major sites of Mesoamerica appear to center on this value; see asterisked items above.</p> <p>note b -- Sources of measurements: A: Aveni; B: Bernal; M: Millon; M-D: Malmstrom and Dunn. Inasmuch as the author (Malmstrom) and his assistant carried out their measurements with a surveyor's compass, wherever data obtained by more precise instrumentation are available, they are cited instead--rounded to a tenth of a degree.</p>				

The problem I have with the arbitrary assignment of Aveni's "17-degree family" to the "15.5-degree family" is that the 17-degree alignments are likely to represent the setting of the Pleiades in about AD 200 or AD 400, as determined by **Teotihuacan**. (See the text for this.) But otherwise, Malmstrom suggests (correctly) that the 15.5-degree east of north alignments represent a sunset on "August 12-13," and writes:

"Of these two possibilities, the latter is definitely the more interesting to students of Mesoamerican calendrics. This is because the Maya -- the most

highly advanced of all Mesoamerican peoples in the realm of astronomy -- believed that the present era of the world began on August 13, 3114 B.C., according to the Goodman-Martinez-Thompson correlation between the Maya and Christian calendars."

"... recurrent building alignments throughout Mesoamerica appear to commemorate a date which can only have had astronomical (solar) origins or, at the very least, could only have been established by astronomical means -- that is, by counting the number of days from some fixed point in time. (In the latter regard it should be pointed out that the August 13 sunset position could easily have been defined simply by counting 52 days from the summer solstice.) In the light of the evidence at hand, one can conclude that far from being just one more in a series of 'coincidences,' the correspondence of building alignment azimuths throughout Mesoamerica and the beginning date of the Goodman-Martínez-Thompson correlation should more realistically be considered as additional proof of the validity of the latter."

For the locations where I have accurate alignments based on current GPS data, I arrive at a date of August 12, not 13. August 13 is the day after, and thus after the "completion" of the previous era.

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Note 7 --

Munro S. Edmonson, "Some Postclassic Questions About The Classic Maya" (*Fifth Palenque Round Table*, 1978).

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Note 8 --

See <http://www.mesoweb.com/pari/publications/RT04/Edmonson.pdf> (1978). Edmonson also notes:

"The seat of the Katun ('hetz' Katun) was the real capital of the region in Postclassic and Colonial times. Though it only served for 20 Tuns at a time, each city competed vigorously for the honor, since it conferred tribute rights and the right to confirm titles to land and public office throughout the region. While these rights must have belonged to ruling lords of major centers, there may nonetheless have been some ritual rotation of subsidiary responsibilities among the cities of the second rank."

"Councils of sages and prophets were held at Mayapan and Chichen Itza in 13 Ahau (1539) and at Merida in 7 Ahau (1579). Such councils were apparently called in times of crisis to resolve calendrical and religious issues, and one such may well have been responsible for the founding of the League of Mayapan in 2 Ahau (1263). They appear to have resembled the Vatican Councils in function, and they commanded enormous respect, representing in Colonial times the highest moral authority in the country. Such a body might for example have had a role in the investiture of the rulers in Classic times as well as later."

"The ritual importance of the Katuns is fully attested by Katun ending monuments. Perhaps some of these contain texts with the curious blend of prophecy and history presented in the Books of Chilam Balam."

"[A] table has been drawn up as a documentation and speculation in relation to the recurrence of the 'may' cycle ending on 8 Ahau Katuns and its possible relevance to the chronology of Maya history. As is summarized in Table I in the text, it is possible to consider eleven such cycles within the framework of Middle American prehistory, from the ninth century B.C. to the twentieth century A.D. The eleventh such cycle would be completed in 2016 A.D., according to the most recent Maya calendar reform, that of Valladolid."

[Table not reproduced]

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Note 9 --

The interval in solar years will match the count recorded by the Olmecs in "Tuns," since a Tun is (was) a (solar) year. Their records would thus match the chronology of the Eastern Mediterranean region. After 1492 BC the year went to 360 days, and a Tun was still a solar year. After 747 BC, when the Long Count was established, the Tun of the Long Count tally was retained at 360 days, even though the Haab year went from 360 to 365 days in 747 BC. Is that interesting and indicative of the process?

David C. Grove, in "Public Monuments and Sacred Mountains: Observations on Three Formative Period Sacred Landscapes" (*Social Patterns in Preclassic Mesoamerica*, 1999), suggests nine or ten altars for **San Lorenzo**, writing (I am counting altars in the quoted text):

"Only two unequivocal tabletop altars have been found at San Lorenzo. Monument 20 (Type B) was found in the far northwest area of the plateau. Monument 14 (Type A) is positioned in the west-central sector of the site. Although separated by more than 400 meters, these two altars are in a virtual north south alignment."

"Evidence suggests that several other tabletop altars had also been displayed on the plateau at some time. Monument 18, in the southeastern corner of the South-Central Ridge, is apparently the basal fragment of a tabletop altar. The stone's low-relief carving depicts a pair of dwarfs, each with one upraised arm, as if to 'support' the missing tabletop. Monument 60, on the east side of the plateau near head 1 may likewise be a basal fragment." [4 pc]

"The most interesting evidence, however, is the astute observation by James Porter (1989) that oddly sculpted areas on two of the site's colossal heads (2 and 7) indicate that these monuments had been altars before being recarved into their present form." [6 pc]

"Four other carvings have also been classified as altars at San Lorenzo: two large rectangular stone slabs, Monuments 8 and 51, and two 'circular altars,' Monuments 16 and 64. Both rectangular slabs are positioned in the same general east-west 'latitude' of the plateau as the Monument 14 and 60 altars. On the other hand, the 'circular altars' are located on the plateau's Southwest Ridge. There they appear to be positioned along an extension of the north-south alignment formed by Monuments 14 and 20." [10 pc]

At 52-year intervals, the ten altars represent 520 years. We would do well to recognize 'altars' as marking 52-year intervals in the future, after **San Lorenzo**.

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Note 10 --

How correct could I be about the number of heads found at **San Lorenzo**, **Tres Zapotes**, **La Venta**, and **Monte Alto**? In originally writing this chapter I guessed from calendar considerations at the number of heads at each of these locations without prior knowledge of how many there were -- **San Lorenzo**: 10 or 11 heads (10 have been found); **Tres Zapotes**: 2 heads (two have been found); **La Venta**: 4 or 5 heads (four have been found), and 7 altars (eight have been found); and **Monte Alto**: 11 heads (eleven have been found).

It was thus distinctly rewarding to find my estimates were confirmed in all cases. This could stand as "confirmed predictions" of a theory -- the theory being the 520-year extent of primacy of ceremonial sites -- except that I could be accused of having looked up the archaeological discoveries beforehand. What I did know beforehand was the approximate archaeological dates of the start and demise of the "may" locations, of which **Teotihuacan** was the most discrete example. These suggested a much longer span of time than what Edmonson originally proposed, which was mainly based on data from Maya sites. Edmonson wrote:

"In the Post-classic the seat of the cycle for the Itza, the 'Well of the Cycle' or 'Mayapan' from 1243 to 1752, was not even inhabited after 1452, but it continued to serve as a symbol of the religious authority of the 'may' for another three hundred years."

One would think that the 300-year abandonment of Mayapan, during which time it was still recognized for its "authority," would have hinted at a longer cycle, as plainly as the 509 years of its life.

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Note 11 --

Peter Furst, in an essay "The Olmec Were-Jaguar Motif" in *Dumbarton Oaks Conference on the Olmec* (1967), argues the opposite: that statuary shows the human face as having been flayed to reveal the "inner jaguar" and reads this as a shamanistic motif.

At **Teotihuacan** warriors start using the flayed human face as a shield, and introduce this to the Maya during the Classical Period.

Not to be dismissed is that the Olmecs represented an influx of West Africans, who brought their language and script, but adopted the local calendar and history books. See, for example, the writings of Clyde Ahmad Winters on this, as *Atlantis in Mexico* (2005).

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Note 12 --

The July 25 alignments and the July 9th would have been instituted in the second occupation of the site. The alignment for an axial inclination of 30 degrees probably reflects a convenience in rebuilding the site after 747 BC.

William Mullen in "Catastrophism and the Compulsion to Meaning" (*Kronos*, Vol. 6:1, 1980) wrote, "*Much of the Early Tres Zapotes level was sealed with volcanic ash.*" He also notes the deposition of bitumen or asphalt. Bitumen is not volcanic. There were two occupations of **Tres Zapotes**. Bitumen was also found at **San Lorenzo** (Coe).

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Note 13 --

The "First Creation" date of 13-Manik 5-Pax first occurs on 5.17.6.0.7 (802 BC), and every 52 years after. The second instance (5.19.18.13.7) happens in 750 BC. This is three years further in the past than the appearance of Mars in 747 BC. This date would have been recorded as the first instance in the Long Count records (the "Council Books"), but was actually the fifth instance since close calls were initiated in 806 BC. The date of 750 BC might qualify as an equivalent astronomical date for a Gregorian calendar date, except that I would expect a difference of four years, not three years. But it might do.

The "Second Creation" date of 9-Kan 12-Xul first occurs on 5.16.19.7.4 (808 BC), and also repeats every 52 years. The third instance (6.2.4.15.4) happens in 704 BC, two years after 702 BC, the fourth appearance of Mars.

It is very possible that the ceremonies involving the appearances of Mars were delayed by months or years, so that we simply have no way of knowing what the actual date was for the carving and burial of a stone head.

This is not true of ceremonies involving the "Creation Altars" which were governed by the calendar rather than some cataclysmic event. Thus it is interesting that one of the dates for the "third creation" day names of 1-Ahau 13-Xul falls on 6.7.1.3.0, which is 609 BC, and only 498 days (1.3 years) different from the Long Count date found from the distance numbers.

A difference of 1.3 years between the calendar date derived from the Long Count and the calendar date derived from the Calendar Round suggests that perhaps we are looking at records which were altered, that is, "corrected," by **Monte Alban**. It was in 607 BC, as I have pointed out above, that **Monte Alban** dropped the repeating Tzolkin calendar for a system where the Tzolkin would be restarted in the 365-day year after the first round, and then cut short after the 105th day. The Long Count was continued, but after the first year of the new calendar, the Tzolkin was displaced by 155 days, by 310 days after two years,

and by 465 days after the third year.

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Note 14 --

Ralph L. Roys, in an appendix to *The Book Of Chilam Balam Of Chumayel* lists a "Chronological Summary" of founding and abandonments of sites in the Yucatan, with respect to Katun 8-Ahau and Katun 6-Ahau, as follows. The Christian (AD) dates used by Roys represent the "Morley-Spinden" correlation, off by three years from the "Goodman-Martinez-Thompson" correlation. I have shown the "Goodman-Martinez-Thompson" dates to match the data of the table in the text, and added the Baktun and Katun.

Baktun.Katun	AD date	event
9.0 8-Ahau	435	a half interval
6-Ahau	455	Chichen Itza discovered
11-Ahau	534	Chichen Itza occupied (estimated)
9.13 8-Ahau	692	Chichen Itza abandoned
		Teotihuacan destroyed
4-Ahau	731	Chakanputun seized
10.6 8-Ahau	948	Chakanputun abandoned
4-Ahau	988	Chichen Itza occupied
10.19 8-Ahau	1204	Chichen Itza conquered
		Tula destroyed ca AD 1170,
4-Ahau	1244	Mayapan seized
11.12 8-Ahau	1461	Mayapan destroyed

Notice that the primary city is destroyed during each instance of Katun 8-Ahau, but that the interval, as a result, is 256 years (as Edmonson noted), not the 520 years I have found for Olmec sites and locations in the Valley of Mexico.

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Note 15 --

As mentioned by Malmstrom, Walter Krickeberg, in *Mitos y leyendas de los Aztecas, Incas, Mayas, y Muiscas* (1980), states that the Nahua (Aztecs) believed that the present "world" came into being in the equivalent of our year AD 726. Malmstrom calculates the Toltec Haab calendar as starting in AD 778 (52 years later). Krickeberg also dates the actual founding of the city of Tula to the year AD 856. The Toltecs apparently took up their earliest residence at a location south of Mexico City. In the writings of Fernando de Alba Ixtlilxochitl

(AD 1568 - 1648) the claim is made for the founding of Tula to AD 566.

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Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.017+ and deg=57.2+; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Chapter 34: The Popol Vuh.

\$Revision: 42.17 \$ (popol.php)

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The *Popol Vuh* is not a metaphorical narrative. The *Popol Vuh* is history, although frequently wildly out of chronological order. Its original creation dates from circa 600 BC in Veracruz or the Valley of Mexico. Scenes from the *Popol Vuh* have been found as murals dated to the first century AD. It starts with a record dating back to perhaps 30,000 BC (or 41,000 BC), and clearly details the period between 10,900 BC and 4077 BC, eventually concluding with details of the 8th and 7th century BC. In the 16th century AD, it was recorded in a European script, in a European notebook.

If the reader has followed the outline of events as presented on these pages, it will become obvious that the *Popol Vuh* describes the "creation of the world" in the same terms as nearly all other "mythological texts" worldwide -- the series of "mythic" events established for Egypt, Mesopotamia, India, China, and many other nations.

How this could be, how peoples removed by centuries and continents could all describe the same series of incidents, not wholly matching in detail, but certainly in effect, is astounding. The *Popol Vuh* correspond to details found in

Books 10 and 11 of the Maya *Chilam Balam*, but mostly transformed into an exciting narrative.

What is probably more interesting is that a reading of the *Popol Vuh* provides access to many obvious aspects lacking in other sources -- the initial cold rains as well as the shadowed sky of the Younger Dryas, the relationship of the southern Peratt Column and ball plasmoids to the appearance of Saturn in the north, the number of times the ball plasmoids in the south collapsed, hints at the starting date of the blazing of Venus in 685 BC, the length of time of the disappearance of the Sun and planets after the plasmoid from Jupiter hit the Sun.

Introduction

For those readers not familiar with the *Popol Vuh*, I will reproduce parts of an introduction by Suzanne D. Fisher, from another work. The following thus recaps the *Popol Vuh* in broad outline and gives some flavor of the contents. [\[note 1\]](#)

"The Popol Vuh, written in the 16th century, was discovered in the possession of the indigenous residents of the town of Santo Tomás Chuilá, today Chichicastenango, Guatemala, by Father Fray Francisco Ximénez, at the beginning of the 18th century. Ximénez translated it and included it in his historic work, but also transcribed the text into the indigenous tongue. This manuscript remained forgotten in the archives of the convent of Santo Domingo until 1854, when it was found by Dr. Carl Scherzer, who published it in Vienna in 1857. Presently it is in the Newberry Library of Chicago."

"Barrera Vásquez and Silvia Rendón, experts on Mayan writings, maintain that the naturally indigenous religious and historical texts were copied from ancient codexes, which fact is quite likely, since the quantity of events, names and exact dates contained in these documents could not have been kept entirely in the memory. ... [likewise] the Popol Vuh bears witness to the existence of an ancient book from which the narration of the origin of the world has been taken."

Let me point out that the *Popol Vuh* makes reference not to one, but to four preexisting glyphic documents as its sources, with the following titles, quoted in Dennis Tedlock's translation of 1996 as:

- **"The Council Book"**
- **"The Light that Came from Beside the Sea"**
- **"Our Place in the Shadows"**
- **"The Dawn of Life"**

What I understand as four separate titles, Tedlock sees as epithets for a single title, the **"Council Book."** But there are sufficient and expansive details in the narrative to suggest separate books for separate periods of history -- very old history. It looks, in fact, that the above list of books is given in reverse chronological order. **"The Dawn of Life"** came before the recollection of **"Our Place in the Shadows,"** which is followed by the book of **"The Light that Came from Beside the Sea."**

Understanding the broad outline of events since the Upper Paleolithic in Europe, it becomes obvious that **"The Dawn of Life"** deals with events or conditions before 30,000 or 40,000 ya (years ago). One of the books of the *Chilam Balam* (Book 11) uses the same source. To claim a record dating to 30,000 BC might seem extravagant, but the details put forth by some pages of the *Chilam Balam* are convincing duplication of what we know was seen in the skies during the European Aurignacian (30,000 to 28,000 ya), Gravettian (28,000 to 24,000 ya), and Magdalenian (17,000 to 14,000 ya) archaeological periods. It is clear that the *Chilam Balam* and the *Popol Vuh* use the same source material.

As I have pointed out earlier, if Europe had not been depopulated because of climatic conditions following 10,900 BC, we would hear of the experiences before that time from present inhabitants of southern Europe. These were the people who carved the first Venus Figurines, and decorated 300 caves in France and Spain.

The next book, **"Our Place in the Shadows,"** recounts the 1500-year period of darkness from 10,900 to about 9,000 BC, and the subsequent drying up of the South American jungle with the change northward of the equatorial climatic zone (after the Younger Dryas). We can be almost certain of that, for the very same suggestion is encapsulated in the very first paragraph of the *Popol Vuh* where the authors describe their intent and the structure for the narrative as:

"And here we shall take up the demonstration, revelation, and account of how things were put in shadow and brought to light by... ."

I don't think that this statement is a metaphor for some sort of revelation; not if Tedlock includes the word "account." It is followed by a list of Gods representing "Oxlahun-ti-ku," the God or God-group known as "The Thirteen" in the *Chilam Balam*. The quotation above deals with an account of how the world became dark, and how it was lighted up again due to action of "The Thirteen."

Although it is never explicitly noted in the *Popol Vuh* that at the first recorded period of history there was light, we can surmise as much from the line:

"... how things were put in shadow and brought to light... ."

It is also never indicated "how" things were put in the shadow. It is unusual not to identify an agent for an action, and this first line almost seems to suggest itself as an introduction to the tale that follows in a manner which indicates that the following is indeed a narrative and not to be taken too seriously.

It is the following book, **"The Light that Came from Beside the Sea,"** which resolves how things were "brought to light." I have assumed here that this would recount the lighting up of Saturn in 4077 BC. But in considering the extent of the 13 Baktuns of the time period before 3147 BC, it looks possible that the "coming to light" was not the lighting up of Saturn (and the first visibility of the Sun), but the "first creation" in 10,900 BC -- the appearance of the brilliant light of the southern ball plasmoids identified by Anthony Peratt. [\[note 2\]](#)

Together with the statement about an account to be given of "how things were put in shadow and brought to light," the sequence of historic eras may reveal some of the underlying philosophy of the Maya, and by extension all of the people of Mesoamerica. Throughout the *Popol Vuh*, the Quiche tribe, other tribes, and other peoples, are called "sacrificers and penitents" in relationship to the Gods. Yet nowhere is there any indication of why people should be penitent or should have to sacrifice. It seems to be a given, as if everyone knew that this was a condition for all humans. The only thing which would make sense of this, very similar to the thinking in antiquity elsewhere, is that the humans felt responsible for the changes that had happened in the constitution of the world. Penitent for their wrongdoing, sacrifice was required to maintain the new order established by the Gods with the return of the light. [\[note 3\]](#)

The last book, the **"Council Book,"** I would suggest, is a recounting of historical events since 3147 BC, and separately in terms of the Long Count after 747 BC. Especially the last of these two records functioned also as an instrument for predicting the future. Because the larger (earlier) portion was in

terms of Katuns, the cycle of 13 Katuns became the main instrument of prediction.

Suzanne Fisher continues:

"The Mayans of Guatemala (in the Popol Vuh) tell of the creation of the world in a cosmogonic myth that can be considered as the best structured and most complete. In it they express how creator gods, reunited in council, decide to create the world so that a being who venerates and supports the gods inhabits it. Once the world is organized, there are several attempts to form human beings, that correspond to the cosmic creations and destructions referred to in other myths. They speak also about a deluge, but also of burning resin, that destroys the men of wood because these were not aware of their creators. After this deluge, the gods create the man of maize meal, the present man, who is the conscious being who venerates and feeds the gods. In this myth, too, there is a fight of the beings of the underworld, the gods of death, with the celestial beings, Hunahpu and Ixbalanque [Xbalanque], who, after conquering death, are transformed into the sun and the moon, starting off the time of the men."

What I will do is to add annotation to summaries and occasional extracts from the excellent translation of the *Popol Vuh* by Dennis Tedlock (rev. 1996). The *Popol Vuh* consists of five books, a very sensible division made by one of the first translators. I should note, by the way, that Hunahpu and Xbalanque were not transformed into the Sun and Moon.

Although there is a clear sequence of events corresponding to historical periods stretching far into the past, the Maya, like the other people of Mesoamerica had substituted a repeating series of 13 Katuns which largely obliterated the continuity of history. I have made clear the implications of this in previous text. History was recognized as a continuum but it was disfigured by the qualities of the repeating series of 13 Katuns.

We see the continuity expressed by the fact that the *Popol Vuh* narrative definitely starts at the beginning (in Book 1, below). But the selection of events is not in order, and the authors of the *Popol Vuh* make selections from the various source books as they saw fit. This is compounded by the annoying propensity of Mesoamerican languages to disregard chronological order as really meaningful. (Annoying, that is, to Indo-European speakers.) The narrative not only frequently lists events in complete disorder, but also presents planets as different characters. One gets the feeling that the authors were reading from

illustrated records with little awareness of the actual connective sequence, so that, as a notable example, Venus takes on the character of Sovereign Plumed Serpent, one of the original Gods, as well as the celestial twin Hunahpu.

The narrative, in fact, expounds the religious philosophy developed after the event of 685 BC, as it did elsewhere in the world. Although it is not at all clear what this philosophy was, the self-sacrifice of Hunahpu and Xbalanque is obviously integral to it.

Book 1: Creation of the World

This describes the initial meeting of the Gods, where it is decided to create the Earth and inhabit it with animals and humans. The stillness before creation is related, living in the shadows, the long time span, the first two attempts to make humans, and their destruction, the last by a flood. This book mixes the plasmoids of the Peratt Column in the south with planets in the north. Seven-Macaw is introduced.

The Northern Gods

What needs to be addressed here are the names and numbers of the Gods. For the *Chilam Balam* it was not difficult to come up with 13 Gods, as Book 10 of the *Chilam Balam* claims. In the *Chilam Balam* I added together the planets of the Saturnian stack (six, including Venus), plus the 7 clearly visible satellites to reach 13 in number. The *Popol Vuh* will list five northern planets instead. But the *Popol Vuh* provides a list of names, together with epithets, so that it is not easy to distinguish the Gods. My best counting effort is listed below.

The *Popol Vuh* actually lists the most coherent set of names for the Gods, separating the Gods of the south from the Gods of the north, and calling the southern apparitions the "Heart of Sky, Heart of Earth" while calling the northern apparition the "Heart of Lake, Heart of Sea." Only the Gods known as the "Heart of Lake, Heart of Sea" are listed in the opening paragraphs. Since later enumerations almost always list 5 names for these, the count should be modified as shown below. I have therefore introduced some modifiers to clear up the count of Gods of the "Heart of Lake, Heart of Sea." The quoted text is a transliteration of the original, in poetic form, by Tedlock. [\[note 4\]](#)

"And here we shall take up the demonstration, revelation, and account of how things were put in the shadow and brought to light by..."

*the [1] Maker, [2] Modeler,
[also] named Bearer, Begetter,
[3] Hunahpu Possum, [4] Hunahpu Coyote,
[also called] Great White Peccary, Coati,
[5] Sovereign Plumed Serpent,
[collectively known as] Heart of Lake, Heart of Sea,
plate shaper, bowl shaper, as they are called,
also named, also described as
the midwife, matchmaker [Maker and Modeler are called]
named Xpiyacoc, Xmucane,
defender, protector,
twice a midwife, twice a matchmaker."*

Tedlock suggests that Hunahpu Possum and Hunahpu Coyote are likely epithets for the twins Hunahpu and Xbalanque, who do not appear in the list, although they will soon appear in the narrative. Sovereign Plumed Serpent is Quetzalcoatl, Kukulcan of the Maya -- Venus. The rest I cannot readily identify, although Xmucane is most likely the planet Uranus, identified as female by "her" long hair. I was initially confounded that Sovereign Plumed Serpent was included in this list, since Sovereign Plumed Serpent (Venus) should not have shown up until after the nova event (what most other peoples hold to be the "creation") of 4077 BC. That Venus was expelled at this time (in 4077 BC), and equatorially, is certain because Venus ended up orbiting the stack of planets (probably at the level of the mass centroid).

But this was resolved when I realized that Mercury should be included in the stack, positioned below Saturn and above Mars. As I have pointed out in an earlier chapter, from Upper Paleolithic sculptures it looks like this might have happened late in the Gravettian (circa 24,000 ya) or during the Magdalenian period (17,000 to 14,000 ya).

In the Magdalenian, Mercury can be identified as the second object from the bottom, and looks in some sculptures of pregnant figurines of the Magdalenian to be considerably displaced from the center of Saturn. This would suggest the later existence of a petaled form of plasma impinging on Mercury. This reduces the number of the northern gods to five again, with Mercury misidentified as the later Venus.

Very importantly, I would also suggest that Mercury had an atmosphere until recently (686 BC, in fact), for there still today exists a remnant much denser

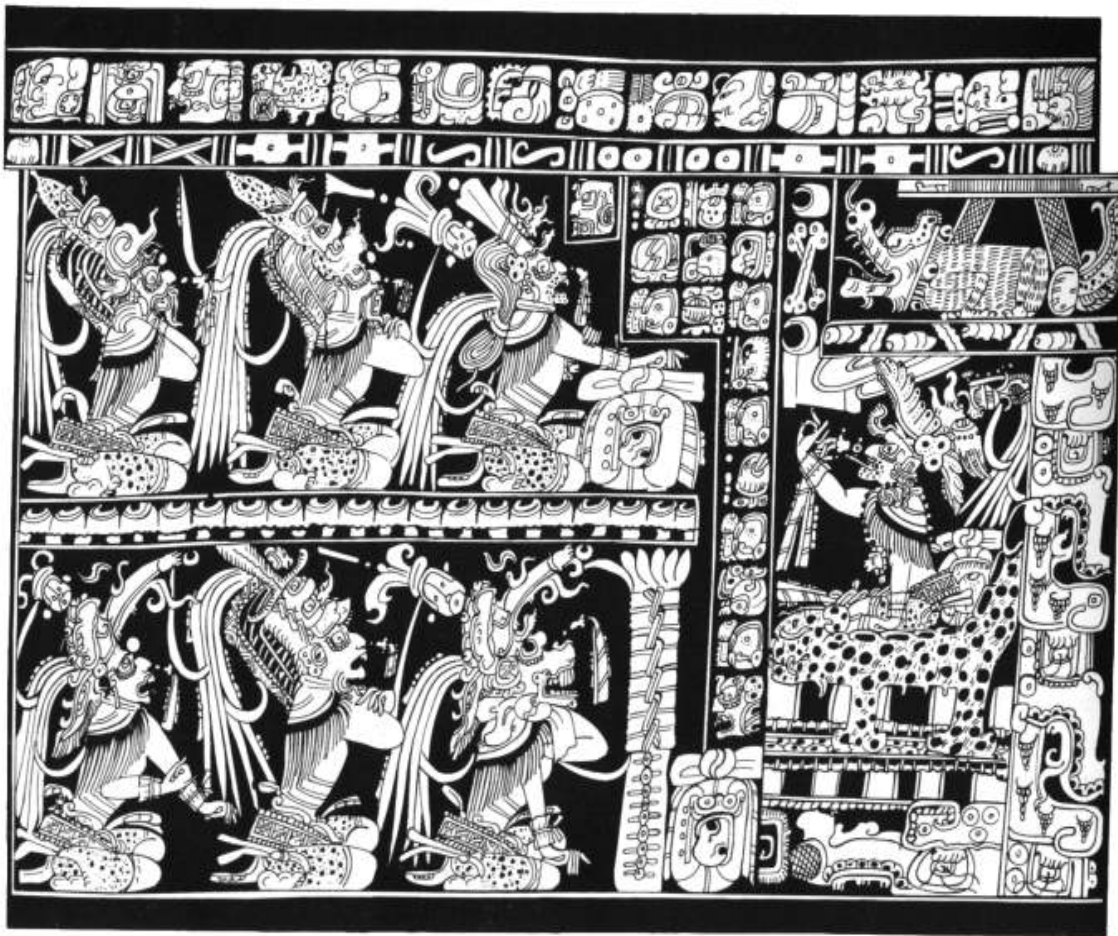
than could be possible if Mercury had been airless for billions of years. Having an atmosphere during the "Era of the Gods" would explain the shell-like array of plasma plumes connecting Mercury and Saturn, as pointed out by Talbott (who misidentifies Mercury as Venus).

From the usage of the names of the gods in the remainder of the *Popol Vuh* it is also almost certain that "Heart of Lake, Heart of Sea" is a collective name encompassing all the names and epithets.

The Southern Gods

Once it is realized that there are two sets of Gods, at opposite poles of the Earth, identification becomes much easier. The northern Gods, seen from a latitude of about 10 degrees in northern South America, would be seen to rise out of the sea ("Heart of the Sea") on a daily basis but sit in the sky surrounded by a pool of plasma ("Heart of the Lake") -- Saturn's rings. The northern Gods likely constituted, from top to bottom, Uranus, Neptune (which after 9,000 or 5,600 BC may not have been visible), Saturn, Mercury, and Mars. This adds up to five. The record of the "second creation" of Book 10 of the *Chilam Balam* does not include Neptune as visible.

I should also note that Allen J. Christenson, in *Popol Vuh, Sacred Book of the Quiché Maya People* (2003), recognizes six Gods of the North, but based on reading "Sovereign Plumed Serpent" separately as "Sovereign" and "Quetzal Serpent." This is wholly correct if the list of six reflects conditions after 4077 BC.



[Image: A pottery Image: "Six gods and Jupiter. The text reads of an attempt to council Jupiter into the act of creation."
After David Freidel and Linda Schele "Maya Cosmos" (1993).]

That there are five gods in the north can be verified from a pot illustration presented by Freidel and Schele in *Maya Cosmos*, as I mentioned in an earlier chapter. The pot presents six gods in conference with Jupiter (God L), urging him to start creation. The six Gods have various names, of which God "Three Born Together" is obviously the three plasmoids of the south. Subtracting God "Three Born Together" leaves five gods that can be assigned to the north. [\[note 5\]](#)

The other set of Gods -- "Three Born Together" -- are collectively known as the "Heart of Sky, Heart of Earth." They are identified in the *Popol Vuh* as Hurricane, Newborn Thunderbolt, and Sudden Thunderbolt. Hurricane is also called Thunderbolt Hurricane, which could also be translated as "one-legged thunderbolt" (Tedlock). These were the three plasmoids of the Peratt Column

seen in the south since 10,900 BC, which rose out of the south horizon ("Heart of Earth") on a daily basis and rotated into the sky ("Heart of Sky"). The three southern plasmoids will act in concert repeatedly as the "Heart of Sky." At some point in the *Popol Vuh* a dialog develops between the Gods of the north and the Gods of the south.

The Survey

The first activity of the *Popol Vuh* is the *"fourfold siding, fourfold cornering, measuring, fourfold staking,"* which describes the overpassing brilliant lines of four of the electron beams of the Peratt Column (found also in the opening page of the *Chilam Balam*). Thus the history of the world starts in circa 10,900 BC. This is perhaps not the starting point of **"The Dawn of Life"** which may be a recollection of an earlier time. The survey of the heavens and Earth (of 10,900 BC) as a starting point has a certain elegance. It assumes agriculture as the basis of human society, although it becomes clear from the *Popol Vuh* that the Quiche remained hunters until very late.

The *Popol Vuh* next declares the emptiness before creation:

*"Only the sky alone is there,
the face of the Earth is not yet clear.
Only the sea alone is pooled under all the sky."*

The description is of the sky in the north, the "sea" in the south, "pooled under the sky" (which may be a singularly unique reference to the equatorial rings as a sea), and "the face of the earth" as the face of Saturn, shrouded in glow mode plasma. The "earth" everywhere else in the world in remote antiquity always described the land of the gods, the land in the sky, upper Earth.

The formlessness of the world is restated, *"... only murmurs, ripples, in the dark, in the night."* This is the same understanding derived as the scribe of Book 11 of the *Chilam Balam* had, that all was night at the beginning of the world, in this case even before the world was created. It is a misreading, the result of a record in the book **"The Dawn of Life"** which for thousands of years never once had reference to the daylight world, or the humans who lived there.

As I have noted earlier, the complete absence of humans in these records is no different from the celestial records drawn on the cave walls of Spain and southern France during the same period of time. Perhaps for a long time after

the last of this record was made, the readers knew that this only related to what was seen in the night sky, and they knew that there was no record of the real world of plants, animals, and humans because these never changed. But at some later time this was entirely forgotten. This would certainly be true if the records of the various tribes had a single source from which they were recopied. At that later time nothing could be said about the mundane world, or the existence of humans, for these never occurred in the texts. Darkness pervades the world of the *Popol Vuh* throughout all of the narrative until the Sun finally rises. This does not happen until Book 4, after 70 percent of the tale is completed.

The narrative next makes a clear distinction between some of the initial Gods:

"Only the Maker, Modeler alone, Sovereign Plumed Serpent, the Bearers, Begetters are in the water, a glittering light. They are there, they are enclosed in quetzal feathers, in blue-green."

First, this brings out an interesting fine point. Most creation myths simply reduce the time between 10,900 BC and 4077 BC to a time of darkness followed eventually by a time of a chaotic swirling clouded sky. I have identified references to the darkness and the clouded skies in Book 11 of the *Chilam Balam*. If the narrative is in chronological order (which is to be doubted) then what we see here is the period after the Peratt Column, after the *"fourfold siding, fourfold cornering, measuring, fourfold staking."* In this case, rather than the Gods being obscured, they are seen -- five of them. [\[note 6\]](#)

Secondly, five gods are listed and all five of these Gods appear in a glitter of light and are (as if) "enclosed in quetzal feathers, in blue-green." Since it involves all of the planets, it clearly is a reference to the "purple dawn of creation" which occurs in other creation myths and epics, although the *Popol Vuh* next declares, "thus the name Plumed Serpent."

Third, there clearly are five Gods, not six. The five Gods would seem to be listed in top-to-bottom order, accounted for as Uranus and Neptune above Saturn with Mercury and Mars below as the Bearers and Begetters -- with Venus absent. (But with Mercury identified as Sovereign Plumed Serpent.)

On the other hand, that the Sovereign Plumed Serpent is listed, perhaps implies that the *Popol Vuh* does not adhere to chronological order (surprise!), for in every other retelling of creation, including Book 10 and Book 11 of the *Chilam Balam*, Venus is only included in the grouping of planets after the surrounding coma, which had enveloped Saturn, disappears when Saturn lights up -- a switch

from a large glow mode coma -- the chaos -- to arc mode. In Book 11 of the *Chilam Balam* Venus does not show up until after creation of the rings, as the dragon held by God the Father. This last agrees with what most of the Saturnian cosmologists have also assumed as the order of events -- that Venus was expelled at the time of the creation of the Saturn's rings, in 4077 BC. The phrase, "thus the name 'Plumed Serpent'," is then perhaps a clue to the fact that Venus is not meant by "Plumed Serpent."

More important, however, is that the *Popol Vuh* makes here the distinction between the Gods of the north and the Gods of the south. "Only ... [list of five names] ... are in the water," that is, only these five are seen in the ocean (presumably) north of the original location of the Olmecs before migration to Central America. Directly following the listing of the Gods of "Heart of Sea" the Gods of the south will be listed in almost identical terms.

The *Popol Vuh* now declares, after having listed the five Gods of the "Heart of Sea":

"And of course there is the sky, and there is also the Heart of Sky. This is the name of the god, as it is spoken [as it is said to be]. Thunderbolt Hurricane comes first, the second is Newborn Thunderbolt, and the third is Sudden Thunderbolt."

There is no question from this that we are dealing with two sets of Gods, three in the south which have dominated the time from 10,900 BC to 4077 BC, and five in the north (and were certainly seen earlier).

In the next paragraph the Gods of "Heart of Sea," confer with the Gods of "Heart of Sky." This goes on for some paragraphs, and one gets the feeling that the authors of the *Popol Vuh* are making attempts to relate what really happened according to the ancient records, but it is considerably confused.

"So there were three of them, as Heart of Sky, who came to the Sovereign Plumed Serpent, when the dawn of life was conceived."

Note again that there are, specifically, three Gods consisting of the Heart of Sky. The northern Gods are here represented by the dominant God, Sovereign Plumed Serpent (or Sovereign Plumed Serpent is used as a collective noun, as seems to have been suggested earlier). I would suggest that what happens here is that the plasmoids in the south collapsed and suddenly moved north ("who came to the Sovereign Plumed Serpent"). It was likely seen, perhaps over a span of some

days or months -- in a spectacular display. The plasmoids of the south neared and engulfed Earth, and then moved further north and simply disappeared. This completed the transition of the Earth of the first of the three locations where the ball plasmoids would be generated because of the presence of Earth in the lower coma of Saturn.

Three meetings are held. And each time the three Gods of the south visit the Gods of the north. Because of this, I think what we are seeing here is three complete collapses of the ball plasmoids. That these appeared three times was hinted at by Peratt. The three appearances of the plasmoids is also asserted by many other "mythological" tales.

The *Rig Veda* relates something of this sort, that is, the travel from the south to the north. A fish tows Manu and his seven sages north to the Himalayas to avoid the flood. The roles are reversed here, since Manu and his seven sages are Saturn and the seven prominent satellites. This leaves the fish unidentified, except to suggest that it is probably the real Saturn in the north enshrouded yet in a coma, together with Uranus. This would have looked more like a white duck or goose than a fish.

To return briefly to the identification of the southern plasmoids, I should note that the opening page of Book 11 of the *Chilam Balam* identifies these three Gods as three trees, based on the looks of the nearest plasmoid, but also on the visual stringiness of 56 bundles of electrons which composed the plasmoids and overrode the physical structure. See, in this respect, especially the illustrations of the reconstructed views of the nearby plasmoid by Peratt in his second paper (or see Chapter 12, "The Peratt Column"). The trees are described as the hut of the first of the men from the south to populate the Yucatan:

"The white 'guaje', the 'ixculun' (and) the gumbo-limbo [tree] are his little hut, ... The logwood tree is the hut [lean-to] of Yaxum, the first of the men of the Cauich family."

-- Book 11, *Chilam Balam*

Seen from 10 degrees north latitude (Brazil) the treelimb-like nature of the near plasmoid would be most obvious. Seen from 20 degrees latitude north of the equator (Guatemala), the southern composite imagery would not have looked like a tree, and certainly not as a giant man in a striped garment, as was recorded in Australia, but as bulbous entities or, as I have noted elsewhere, as an opossum or a turtle.

Book 11 of the *Chilam Balam* likewise identifies the three Gods as three stones far to the south, below the South Pole, set beneath the "One Stone," Saturn in the north. "Beneath" describes that Saturn, as the starting point for the streams of electrons, appeared above the streams in the north. The south is not specifically identified, except as suggested by the geometry of being "beneath" and "in the dust at the feet." The dust very likely also represents the equatorial rings of the south. The brilliant ball plasmoids would easily shine through these, but the image would glitter or shimmer with the movement of the rings.

"And then the earth arose because of them, it was simply their word that brought it forth."

I need not point out that here, as elsewhere in the world, the "Earth" which "arose" was not where we live, but the "land" or "Paradise" above the north horizon. The *Popol Vuh* immediately returns the reference to "Earth" back to our globe, however. Note also that, like in Egyptian mythology, the creation happens because of spoken words.

The Mud People, the Wooden People

The *Popol Vuh* next launches into the creation of animals, who cannot speak and praise the Gods, and then the first two attempts to make humans, first of mud, which were simply allowed to dissolve.

After the mud people dissolve, and before the creation of the wooden people, the Gods of the south meet again with the Gods of the north:

"When Hurricane had spoken with the Sovereign Plumed Serpent, they invoked the daykeepers, diviners, and midmost seers."

This time Xpiyacoc and Xmucane are invoked, under a number of dual names, and as suggested by Hurricane. At the end of a long dialogue on methods, Plumed Serpent speaks, reprimanding the "Heart of Sky" (which includes Hurricane):

"Have shame, you up there, Heart of Sky, attempt no deception before the mouth and face of Sovereign Plumed Serpent," they said.

And so the wooden people were created and populated the Earth. The wooden people are a failure also, for *"they did not remember the Heart of Sky."*

"The Heart of Sky devised a flood for them," plus destructions by falling tar, by wild animals, and crushing by trees and rocks, where the wild animals and the trees and rocks are likely plasma discontinuities.

During the destruction of the wooden humans, which included attacks by kitchen utensils, the *Popol Vuh* states that "their hearth stones were shooting out." Tedlock illustrates this with glyphic representations of the three hearth stones, which are said to have entered the sky at some time in the past, and constitute three stars of Orion (but only one of the belt stars) in the form of a triangle enclosing M-42, looking like a central fire.

"Sometime in the past" is in dispute. Tedlock, in a note, points out that Freidel "places the event at the beginning of a new age and raising the entire sky rather than just the hearth stones." Freidel, although he may have "obscured" the dating, is correct within these parameters. The three stones in question (in the constellation Orion) are located below the Pleiades (actually slightly removed, below the tail of Taurus), and would only have become visible after the fall of the Absu, in 2349 BC, the date of the end of the "third creation." The "third creation" clearly constituted a new age, and the raising of the (southern) sky. The "flood" mentioned here in the *Popol Vuh* is probably the flood of 3147 BC, not the fall of the Absu in 2349 BC. However, I think the placement of the hearth stones took place in the era after 10,900 BC, as the three plasmoids of the south sky. The later Maya related this to current condition of the sky and identified them as stars in the constellation Orion.

Cardona, in "Darkness and the Deep" (*Aeon V III*), quotes H. Osborne, in *South American Mythology* (1970), as:

"Some mythological cycles feature a primitive age of darkness before the existence of the sun, when human beings lived in a state of anarchy without the techniques of civilized life. Sometimes myths in this category appear to embody a confused racial memory of a hunting and food-gathering stage. It is not uncommon for them to be associated with a tradition of the destruction of the primitive food-gathering race by a creator god and the creation of new races"

This parallels the destruction of the manikins, the wooden people, of the *Popol Vuh*. If, after the worldwide flood of 3147 BC, the survivors came to inspect coastal areas and survey the carcasses gnawed by scavengers and the remnants of villages, they might easily reach the conclusion that a previous generation of humans had been destroyed by the Gods.

Additionally, the "crushing by stones and trees" recounts the effects at the extreme edges of the gigantic compressive impulse in North America, but experienced to a lesser degree also in Central America and northern South America. The "fall of tar" can be accounted for as a sludge of rainwater and micro particles of carbon which fell as far south as Venezuela.

Seven-Macaw

The "Heart of Sky" continues to be invoked further into the narrative as a primary God, but at this point Seven-Macaw is introduced in a prelude to the next book. He sits at the top of a nance tree, and pretends, very proudly, to be the Sun and the Moon. Seven-Macaw is held to be the constellation Ursa Major by the Maya as by archaeologists. I would agree, although the description of Seven-Macaw hardly qualifies him as simply a seven star constellation.

"So be it [Seven-Macaw speaks]: my light is great. I am the walkway and am the foothold [the night light] of the people, because my eyes are of metal. My teeth just glitter with jewels, and turquoise as well, they stand out blue like the face of the sky. And this nose of mine shines white into the distance like the Moon."

"And so Seven-Macaw puffs himself up as the days and the months, though the light of the sun and moon has not yet clarified"

As Tedlock points out, Seven-Macaw, named "kakix" in the *Popol Vuh*, describes a scarlet macaw, which has a white beak.

Book 2: The Fall of Seven-Macaw

<p>This part is seen as an interlude, for real humans have not been created yet. It describes the adventures of two hunter boys, Hunahpu and Xbalanque, who strike the plumed bird Seven-Macaw who resides on top of (what will turn out to be) the celestial tree in the north. This places the event in 3147 BC. Seven-Macaw's two giant sons, Jupiter, looking like a green mountain, and Mars, on its 300 years of destructive visits to Earth, are dispatched also. The twins Hunahpu and Xbalanque are gods, yet they have parents, described in the next book.</p>

The Celestial Bird

The action of removing the celestial bird at the North Pole is set in July of 685 BC. The removed bird is Ursa Major. The action of the twins in accomplishing this is then moved, with Hunahpu and Xbalanque still as the actors, to 3147 BC,

where the earlier celestial bird of the North Pole is actually the whole of the Saturnian polar display. Certainly Seven-Macaw is pretty, with a display of colorful plumage, pretty teeth, and metal disk around his eyes. Tedlock relates the disks to the eyepatches of scarlet macaws. Birds don't have teeth, though, but this is as likely some reference to the original text which has failed to resonate for us. Most often many of the details of the *Popol Vuh* story can be identified. Tedlock, in fact, furnishes a parallel reading in terms of Tzolkin day names, the cycles of Venus, and geography. Much of it makes sense, but some of it has other sources, which I will point out. The constructed narrative -- built around the bare facts -- has all the sense of being of long standing.

In notes by Tedlock it is revealed that Hunahpu's name could be rendered as "First Blowgunner" ("Hun Ahaw" in Yucatec, "One Lord," "First Lord," or "First Hunter") as well as having a meaning which reflects an affinity with Venus as the morning star, under the same name. All this is appropriate when it is recalled that in June and July of 685 BC, and as the "Sibylline Star Wars" document of AD 115 also relates, the two entities battling in the skies do so with "long fire-flames." Kugler described his impression as, "the light of the sun was replaced by long streams of flame crossing each other," looking, in fact, like the twins were carrying blowguns. Thus the "long fire flames" are the blowguns of the twins. And only birds were hunted with blowguns.

The name Xbalanque, as I have pointed out earlier (and also based on Tedlock's notes on this), can be understood as "Little Jaguar of the Night." Tedlock points out that the name could also be understood to mean "the sun's hidden aspect," although that just plays on the later association of the blowgunner boys with the Sun and the Moon. In Yucatec the glyph for Xbalanque reads as, "Yax Bolon" which reads directly as "First Nine," but the "nine" head of the glyph is always shown with jaguar spots, which Tedlock understands as a pun on "balam," that is, "jaguar." Completing the glyphic literary device, this would also refer to "Bolon Dzacab," "Nine Lives," the name for Mars since remote antiquity.

This suggests that Hunahpu and Xbalanque are Venus and Mars, and this was my understanding at first. In fact, this is true for their noted appearance in 776 BC, during the celestial ballgame. Thus in 776 BC Venus and Mars play the role of the father and uncle of Hunahpu and Xbalanque, named One-Hunahpu and Seven-Hunahpu. But as likely One-Hunahpu and Seven-Hunahpu make their appearance in 762 BC when they clearly are Mars and Mercury. Only directly after 747 BC (15 years later) could the skull of One-Hunahpu be seen hung in a calabash tree.

It is always the same two twins, except in 685 BC, when Mars is away to the west of the Sun, and it is Venus and Mercury which blaze for 40 days. The idea of twins in the sky resounds in almost every mythological record of recent antiquity of every nation, even in China and Australia.

Tedlock points out that if Hunahpu represents Venus, and Seven-Macaw is Ursa Major (both of which are correct for 685 BC), then the nance tree which Seven-Macaw feeds on, "the great tree of Seven-Macaw," is the Milky Way. In response to the twins suggesting "We could shoot him while he is at his meal," Tedlock places Ursa Major high above the pole, locates Venus yet at the horizon, and points out that nances start to ripen in June. A June evening would be the occasion for the blowgun shot.

The location of Ursa Major above the pole is not needed, as the reader will realize, for it is the displacement of Ursa Major which will be accomplished here -- in 685 BC. Also, at this date Ursa Major will not fall but will rise. Because of the latitude from which this is seen, Ursa Major is precariously close to the north horizon at, say, midnight, and it is toward the north horizon that it would thus fall as the night progressed. But the graphical rendition of this action on a pot ("the Blowgunner Pot") shows how the action of killing Seven-Macaw during his meal was to be understood: The tree grew out of the south. In fact the tree has the Witz mountain face at its base, a recollection of the Absu. Of course there is here some tree confusion. The Milky Way seems to be substituted for the tree which had earlier held up Saturn.

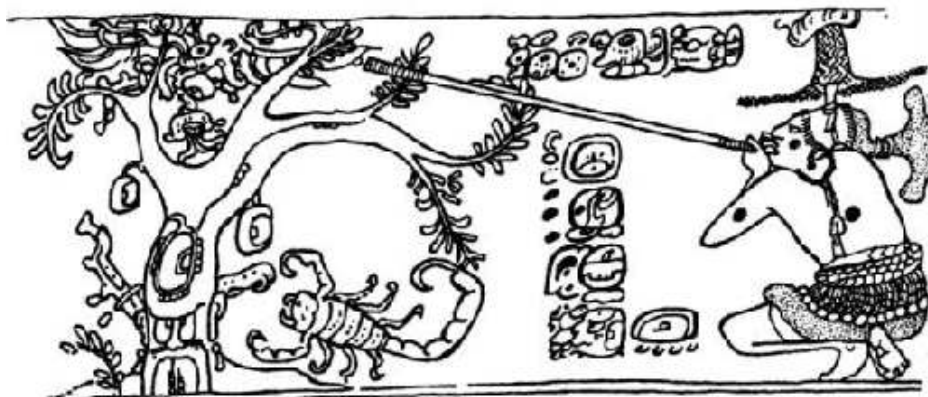
But clearly is from the perspective of the south that the Blowgunner pot is to be understood. Seven-Macaw will fall but only during daylight hours; after 8am Seven-Macaw will fall toward the south. The date in June is appropriate, for it was on June 15 that Venus and Mercury start to blaze -- during daylight hours.

Tedlock notes that in the *Dresden Codex*, for the year AD 1235, "the confrontation occurs when Venus makes one last appearance as the evening star ... [with the last appearance on about] June 10th, AD 1235." This is also based on seeing Seven-Macaw climbing up the nance tree every night. This is not the correct year or the correct action.

By 7 pm Ursa Major is above the pole, then starts to "fall down" in the west. The tree of the Milky Way, however, is not anywhere near. It stretches across the horizon at nightfall, but stands up straight after midnight and as Ursa Major touches the horizon in its fall. By that time Venus has long disappeared below

the horizon. The Milky Way, in fact, does not go through Ursa Major or the polar stars.

This reflects the efforts of both Tedlock and the Maya to come to an understanding of ancient records. It would have been perfectly reasonable for the 13th century AD *Dresden Codex* to recast the events of the remote past to match the skies as if it had been without variation since the 7th century BC.



[Image: "Done by Hun-Ahau; on 1-Ahau 3-Kankin he entered the sky, Itzam-Yeh." After David Freidel and Linda Schele "Maya Cosmos" (1993).]

Hunahpu shoots a pellet at Seven-Macaw, which breaks his mouth, loosening his teeth, and he falls to the ground. As Hunahpu approaches, Seven-Macaw rips off Hunahpu's arm. Shooting Seven-Macaw is marked on the pot as happening on May 28th, 3148 BC. The year is 32 years before the year of 3114 BC retrocalculated by the Olmecs or Maya as the end of a previous era, and makes no sense except to suggest that it happened in the astronomical year -3148, where I have used the BC notation for astronomical years, thus 3147 BC of my general chronology. [\[note 7\]](#)

To end up with this date (as Haab and Tzolkin dates) on a vase suggests a retrocalculation at a much later date, but based on earlier sunset locations rather than anything as concrete as a Tzolkin and Haab day combination (which were not in use yet). As I have suggested earlier, this might have been the seasonal day when the Saturnian system crashed. If so, it would mark the "return" location of the orbit of Earth after being released by Saturn -- the aphelion -- and thus the summer solstice.

Rose and Vaughan in 1974 suggested that the aphelion of Earth's orbit moved 10 or 15 degrees in 685 BC. This is not the 15 degree shift in the equinox, but taken

together it moves the date assigned to the solstice. This would locate the previous solstice some 25 or 30 days earlier than July 4th. This would be equivalent to 36 to 43 days on a previous calendar, partially on a calendar of 225 days. The Appendix "Celestial Mechanics" details the calculation.

This detail of shooting Seven-Macaw in the jaw is difficult to trace to known facts from the Eastern Mediterranean, India, or China, and it gets more difficult when the authors of the *Popol Vuh* include incidents from other time periods.

But the detail of Hunahpu losing his arm (torn off "at the shoulder") can be found among many sequences of the mythological events for 3147 BC, as, for example, Beowulf ripping off the arm of the dragon Grendel "at the shoulder." Grendel is Venus.

At this junction, both of the boys are located in 3147 BC as the very visible Venus and Mars. It is Hunahpu, Venus, who wields the blowgun as the plasma stream connection to Saturn. In the next moment, as Seven-Macaw (Saturn) falls (like Osiris fell on his side and died), the plasma connection between Venus and Saturn is interrupted -- Hunahpu loses his arm. About the ripped-off arm, Tedlock writes, "At this point Seven-Macaw's behavior departs from that of an actual macaw." No kidding!

Seven-Macaw, Itzam-Yeh the water wizard, has been identified as God-D, which I in turn have identified as Saturn -- although this should be obvious from the bird imagery and the perch atop a nance tree, which was probably the polar column from before 3147 BC, but became identified as the Milky Way 4000 years later. Note that the text of the pot reads, "he entered the sky, Itzam-Yeh." It was the release of Saturn from its stationary perch in the north which plunged it into the "skies" of the south.

Seven-Macaw goes home, while the boys engage two elderly tooth pullers and bone setters in their plot, Great White Peccary (Neptune) and the long-snouted Great White Coati (Uranus). Both were known from much older records (making them elderly indeed). Great White Peccary had not been seen in the last few thousand years. Both, in fact, are listed among the "Heart of Lake" Gods of Book 1. Now, in 3147 BC, as the Earth suddenly lifted its orbit toward the Sun, they were both seen again, departing from Saturn. Great White Peccary and Great White Coati, under the guise of providing a cure, pull the blue teeth of Seven-Macaw, and remove the rings from around his eyes; "the last of his metal came off."

This is an interesting detail, for if Saturn kept his jewels, eye rings, and whatever adornments until he fell in 3147 BC, that would suggest that Saturn was still in arc mode plasma discharge to the very last. Perhaps the earlier ring of 56 streamers of electrons in arc mode had stopped, but the surface of the planet was still blazing like a sun in 3147 BC. As the *Chilam Balam* reads, "then [first] it was that fire descended, then [next] the rope descended."

Eye rings are an unusual form of jewelry, and I can only imagine this as the equatorial rings of Saturn. When Earth changed the inclination of its orbit, and started climbing up toward the Sun's equatorial plane, Saturn would have been seen edge on, and the rings (eye rings?) would have disappeared. Similarly, the blue teeth can probably be equated to the inline sight of the core of plasma streamers in arc mode (headed for the planets below Saturn). That would have ceased as Saturn came under the electric influence of Jupiter, as would otherwise certainly have happened when Saturn started to move away from the Sun. That Itzam-Yeh died is certain, for nothing is ever heard of any activity of Saturn again -- anywhere in the world.

The mention of "metal" as part of Seven-Macaw's "brilliance" and "fiery splendor" hint at the fact that the nature of his adornments is a late interpretation. Mesoamerica was a stone-age society which gained only a limited metallurgy by Aztec times.

When Seven-Macaw died, because of the removal of his grandeur, his wife, Chimalmat, also died. Chimalmat is held to include the stars of the Ursa Minor, "shield net" in Nahuatl, as noted by Tedlock. If the pan of Ursa Major initially rotated at the pole (before 685 BC), then Ursa Minor would look like a net being cast in a semi-circle each night. I think this is a later attempt at rationalization. As likely it is Uranus, the planet with the long hair, which was visible near Saturn for thousands of years, and known in the *Chilam Balam* as the sister of Oxlahun-ti-ku, Saturn. Uranus is an unremarkable dark planet, and would likely have all but disappeared from view after losing its plasma connection to Saturn.

With Seven-Macaw and Chimalmat dead, the elderly doctors graft the arm of Hunahpu back on him, an event noted in the Bible as the return of Noah's dove with an olive branch in his mouth.

Zipacna

The boys then go to kill the two sons of Seven-Macaw, the giant Zipacna, whose name and certainly his habits (says Tedlock) are those of a cayman, and Earthquake. Without a doubt Zipacna is Jupiter, a green mountain, understood in Egypt as the green mummified body of Osiris (directly after 3147 BC). His cayman attributes will be recognized from the depiction of Jupiter in Olmec iconography dating to 685 BC, when the lower mountainous plasma plume is recorded as looking like the down-pointing head of a crocodile with open jaws. This last form will be retained into the era of the Classical Maya, although Zipacna is mostly depicted as slithering along a river's edge like a real cayman or crocodile. On the "seven Gods pot" Zipacna is shown above Jupiter.

The other son is Earthquake. *"Mountains are moved by him; the mountains, small and great, are softened by him,"* reads the *Popol Vuh*.

But before the blowgunner boys go after these two, we are told of an adventure of Zipacna and the Four Hundred Boys. The Four Hundred Boys are acknowledged to be the Pleiades, but probably could also signify the 400 stars of the south. "Four hundred" is a word for "multitude," often translated from the *Chilam Balam* as "infinite." The incident takes place in 2349 BC, the time of the fall of the Absu and the end of the "third creation," and known to us as the "flood of Noah."

The Four Hundred Boys are dragging a log for their house and ask the passing Zipacna to help them, which he does. They decide, however, to kill him, for he is too powerful. They ask him to help dig a hole for the center post and, while Zipacna is down in the hole, they cast in the center post with the purpose of killing him. Presuming Zipacna has been killed (he plays along with the trick), the Four Hundred Boys get on to preparing their fermented maguey drink, which takes three days.

"And then [on the third day] all the boys got drunk, and once they were drunk, all four hundred of those boys, they weren't feeling a thing." That is when Zipacna exploded from the hole, where he had been hiding in a side cavity, and brought down the house on the Four Hundred Boys. The authors at this point note that the Four Hundred Boys became the Pleiades, but wonder if that is just a play on words in Quiche.

The reader will recognize a number of elements from the actual events of 2349 BC. Zipacna reappears after three days. The Four Hundred Boys are stinking of alcohol when they get killed. The blood in the sky is from their death. The Pleiades had appeared in the south sky for the first time. The center post of the

house is the south polar plasma plume which appeared soon after and could be seen standing in a hole. The hole is the gap in the Absu at the time of the fall equinox.

The shock to the Earth, on the day of the fall equinox in 2349 BC, would have tilted the northern hemisphere of Earth away from the Sun. This would have moved the Absu up. The result would be to change the two mountains with the gap in between (as the Absu would look like at the time of the equinox) to the usual semicircular structure, with the Earth's shadow again representing the rounded doorway. The house of the Four Hundred Boys is visually completed with that.

And then it got "blown up" by Zipacna -- it showed again as an open gap as the Earth's axis returned to its original position. The house, mainly outlined by its doorway, now had disappeared, but the center post -- the southern plasma plume of the Earth -- stood in the center. All these elements are associated with 2349 BC, and with the worldwide celebrations of the Day of the Dead. Implied also is the fact that Zipacna next rose from the gap (appeared) in all his glory. Missing from the tale are the raging goddesses of the Eastern Mediterranean who wade in the blood of humans. But there are almost no goddesses in Maya mythology.

Next the blowgunner boys take on Zipacna. *"It's mere fish and crabs that Zipacna looks for in the waters ... going around looking for his food by day and lifting up mountains by night."* Zipacna searches the waters of the Absu. If he only lifts mountains at night then we have to conclude that not much of Jupiter and his giant lower mountain-like form was seen during daylight hours, but only at night. This is another of the rare references to the equatorial rings as a sea, or at least, as water. The inferred difference between the daytime and nighttime look of Jupiter is something which was never recorded elsewhere in the world.

The boys create an artificial crab, and place it in the overhang of a mountain. They meet a hungry Zipacna, and direct him to the giant crab. Amid various sexual innuendoes the *Popol Vuh* tells of how Zipacna approaches the crab (a metaphor for "vulva") by crawling underneath -- up to his kneecaps. The mountain settles on him and he dies by turning to stone.

You will recognize the crab form with two extended claw arms, or the legs of Zipacna, as the "shen" form assumed by the coma of Jupiter when it entered the asteroid belt in about 2850 BC -- three hundred years after 3147 BC. This is the first of the two offending planets to be disposed of by the twins.

Earthquake

The second to be tracked down is Earthquake, who prided himself of his destructions, *"I just scatter mountains, and I am the one who breaks them, in the course of the days, in the course of the light"* (which means "all the time"). Notice that if Earthquake (Mars) worked both night and day, he would have been seen both inside and outside the orbit of Earth, as I have pointed out in an earlier chapter.

Earthquake is fed a bird baked in clay (the *Popol Vuh* reads "plaster"). Together with the boys he walks east, to view a very large mountain, but Earthquake has weakened from eating the bird baked in "earth" (plaster). The boys bind him hand and foot, and bury him.

It was the God Hurricane who directed them to go east with Earthquake to look for a mountain and lure him "into sitting down." Tedlock notes that Hurricane may have meant a burial. I cannot place the mountain in the east, for it would have to be Jupiter with its extensive lower coma, but Jupiter had disappeared (in the actual proper sequence) into the asteroid belt 100 or more years before 2700 BC when Earthquake disappears.

The removal of Earthquake to the east seems like the observation over an extended time period of the progressive rotation of the second nodal point of the orbit of Mars. Mars may have been seen crossing Earth's orbit further and further away each year, until after some years it was just a distant speck. His walk would slow, as it did when seen at a remove from Earth. "In the east" also assumes an outer orbit for Mars, so that when the Earth passed Mars it was first seen in the east. On an orbit with an aphelion much further from the Sun than Earth, it could have looked as if Mars just disappeared into the ecliptic and died. In fact, he should have disappeared in the west. The bird covered with earth may signify the pitted lower hemisphere of Mars. At any rate, note that the death of Earthquake is hardly as spectacular as that of Zipacna. Earthquake just disappears.

Book 3: The Ballgame

Here the story steps back to relate the demise of the father and uncle of Hunahpu and Xbalanque at the hands of the Gods of Xibalba, the Underworld, who had invited them to a ballgame. The severed head of One-Hunahpu, the father of Xbalanque and Hunahpu, is hung from a calabash tree.
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The tree is visited by Blood Moon, daughter of one of the Xibalban Lords, and is impregnated by the severed head of One-Hunahpu. She goes to live with One-Hunahpu's mother, and bears Hunahpu and Xbalanque.

Hunahpu and Xbalanque in turn play a ballgame with the Gods of Xibalba, but trick them throughout the games. They eventually offer themselves to be sacrificed, but return magically to signal the start of creation. Although often presented as such, they do not "become" the Sun and the Moon.

One-Hunahpu and Seven-Hunahpu

The *Popol Vuh* now recounts three generations of its gods, placed in the time before the First Creation. Two of the original five Gods of the "Heart of Lake," Xpiyacoc and Xmucane, which had been listed as "the midwife" and the "matchmaker," are parents to One-Hunahpu and Seven-Hunahpu. These two will be the subject of the first part of this book. Xpiyacoc and Xmucane are probably Neptune and Uranus. Uranus is the woman, because of her long hair.

One-Hunahpu and Seven-Hunahpu cannot place easily, although as soon as they venture into playing ball with the Lords of the Underworld, they are obviously Venus and Mars in 776 BC (could be 762 BC), using Mercury as the ball, as I have pointed out earlier, although the tradition among catastrophists is that the Moon was the ball. The interaction of Mars and the Moon, as well as an electric interaction between Venus and Mars, are established from Homeric literary sources. We have to assume that the date of 776 BC is indeed the celestial event which formed the basis for the foot races which were the first events celebrated as the Olympic Games in Greece, and may have constituted the first religiously based ballgames in Mesoamerica.

Venus and Mars can be placed near Earth in 776 BC, on the assumption of differing ellipticity of their orbits. I would still opt for Mercury playing the role of the ball, since both in 3000 to 2700 BC as well as during the period of 806 to 686 BC Mercury most likely showed up whenever Mars cruised close to Earth. See Appendix A, "Notes on Chronology," and the chapter "The Chilam Balam" for details. Mercury cannot be placed near Earth in 776 BC with an ephemeris, for Mercury would have radically changed its orbit in 686 BC as the result of an electric repulsive shock with Earth, and thus its orbit a hundred years earlier is mostly unknown.

One-Monkey and One-Artisan

Before engaging in the ballgame, however, One-Hunahpu marries Egret Woman and begets two sons, One-Monkey and One-Artisan. Egret Woman is probably, again, Uranus, although perhaps not (see below). These two boys are likely to be the two large satellites of Uranus. They appear as the eye-slits of many, if not most, of the Venus figurines during and after the Upper Paleolithic, as I mentioned for an exemplary figurine at Dolni Vestonice in Moravia (see the chapter "Saturn and Archaeology").

One-Hunahpu, Seven-Hunahpu, One-Monkey, and One-Artisan play ball together, every day. A falcon, "the messenger of Hurricane," would come to watch them. This is not so difficult to place, since I have earlier assumed that Saturn's travel was as a seated bird, like the falcon seated on the name-serekhs of Egyptian pharaohs.

Another detail mentioned by the *Popol Vuh* is the death of Egret Woman, the mother of One-Monkey and One-Artisan. If Egret Woman was Uranus, then we have to guess why she disappeared. From the *Chilam Balam* might be suggested that Uranus disappeared into the flower that was Saturn. This is likely the disappearance from view as Earth moved closer to the rotational axis of Saturn. Saturn is large enough to completely cover Uranus, even though it was offset from the rotational axis of the planet stack.

But I'm not sure on this. One-Monkey and One-Artisan are later told to be living with their grandmother, Xmucane, who I have also identified as Uranus, although she is as likely to be identified with Mercury. With an atmosphere and a coma, and being much closer to Earth and in full view, Mercury is an obvious candidate for being the grandmother. Xmucane continues to play a major role in the family.

The First Ballgame

It is the ruckus of their ballplaying which arouses the Lords of the Underworld to action. The *Popol Vuh* lists their names and tasks, representing all the maladies afflicting humans. There are 9 of them, including the leaders One-Death and Seven-Death. *"What is happening on the face of the Earth? They should be summoned to play ball here."*

One-Hunahpu and Seven-Hunahpu are playing ball at a ballcourt called "Great Hollow with Fish in the Ashes" when the Messenger Owls of the Lords of Xibalba arrive. Tedlock identifies "Great Hollow with Fish in the Ashes" as a

location near Coban. That may have been a later geographical correspondence, but I would suggest a location in the night sky of the south defined by the Earth's trapezoid-shaped shadow on the equatorial rings at the time of the equinox.

The "Great Hollow" was last seen at the time of the end of the "third creation" at the fall equinox in 2349 BC. It is the view to the south and is an image which defines a flat plane between two mountains, or a cleft mountain, and so defines the ballcourt with its inclined embankments. What had also been seen were the fish and the fire -- the nine secondary plasmoids from Jupiter, looking like catfish, and their impact at the Sun. (The Sun was also located in the "gap," since this was the time of the equinox.) The main plasmoid, seen in India and the Mediterranean as a dragon or as an angry goddess wading in blood, was not seen in Mesoamerica, as I have detailed earlier. All this information must have been recorded graphically in the source books of the authors of the *Popol Vuh* and differs as expected from the imagery of Asia and the Mediterranean region.

Tedlock suggests that the fishes and ashes possibly prefigure the incineration of Hunahpu and Xbalanque in the oven of the Lords of Xibalba, the tossing of the bone ashes into the river (the ecliptic), and the later sighting of Hunahpu and Xbalanque as catfish. That is true in that this element of prehistory from 2349 BC will be incorporated into the narrative again later.

That some location in Guatemala ended up named after this event does not surprise me. Ceremonial sites were also named after graphical elements from the books of antiquity. An example is Yaxchilan, whose "emblem glyph" (and thus its proper name) seems to be "cleft sky" -- a clear reference to the skies before the end of the "third creation" of 2349 BC. [\[note 8\]](#)

It could be suggested that the fish (in the Great Hollow with Ashes) is the constellation or zodiac sign of the shark. This would show at night at the spring equinox as our constellation Libra, but not at night at the fall equinox, but at high noon instead. (It is clear that the Olmecs and Maya knew where unseen constellations were located in the daytime skies.) In either case Libra appears near the location of the crossing of the last equatorial ring and the ecliptic. The rapids that One-Hunahpu and Seven-Hunahpu had to cross on their way to the crossroads are likely the close grouping of Messier objects east of Libra, in Scorpio and Aquarius (M11, M17, M20, M8, M22, M6, and M7). In fact, the *Popol Vuh* tells that they passed through "Scorpion Rapids." The constellation

Scorpio is directly east of and below Libra, and has the same name in Mesoamerica as in Babylon.

One-Hunahpu and Seven-Hunahpu follow the messenger owls after stashing their ball in the rafters of their mother's house. Following the owls, "... *they descended the road to Xibalba, going down over the edge of a steep slope.*" This is followed by Rustling Canyon, Gurgling Canyon, and Scorpion Rapids before they reach and cross the River of Blood and the River of Pus and reach the Crossroads. Tedlock finds a geographical sequence equivalent to the canyons (with some additional details), but switches to a celestial journey at Scorpion Rapids.

It should be obvious that the River of Blood is the remaining ring of the Absu which lasted into the current era. Likewise the River of Pus is the ecliptic, what the Chinese called the Yellow Road. The Crossroads are the same two rivers when these cross at the equinox, forming the Saint Andrew's cross. The colors associated with the four roads (the cross roads) are the traditional Maya directional colors, also mentioned in the *Chilam Balam*, and often applied to anything which might be related to the cardinal directions. One-Hunahpu and Seven-Hunahpu will move to the west in the sky to reach the night sky or the underside of Earth.

When One-Hunahpu and Seven-Hunahpu had reached the council place of the Lords of Xibalba, they make mistakes, greeting two manikins, sitting down on a hot seat (a griddle). They are told to enter Dark House for the night, "a house with darkness alone inside." The other four houses are listed, and Tedlock notes that together with the first house these could easily be five of the 13 Maya constellations of the zodiac, under various conditions of the movement of Venus, either the 90-day disappearance after an easterly setting, or the reappearances of Venus on the repeating five-year cycle. I agree, with some reservations, but will attempt to tie some of the houses to actual locations in the sky in the five instances of a close approach of Mars during the period of 747 to 687 BC. I should also point out that the five houses which were designed to kill Hunahpu and Xbalanque may be equated to the five graves prepared for Mars at the Olmec site of La Venta -- the last of which is in the form of a giant cayman. I suspect that the earlier incident of One-Hunahpu and Seven-Hunahpu playing ball, or preparing to play ball, represents Venus and Mars in 776 BC. Both disappear after being seen near Earth.

One-Hunahpu and Seven-Hunahpu are brought a torch and two lighted cigars, and told to return them in the morning. But the next morning the torch and cigars have been used up, and the Xibalbans announce, *"This very day, your day is finished, you will die, you shall disappear."* The *Popol Vuh* continues:

"And then they were sacrificed and buried. They were buried at the Place of Ball Game Sacrifices, as it is called. The head of One-Hunahpu was cut off; only his body was buried with his younger brother."

Blood Moon

One-Hunahpu's head is placed *"in the fork of the tree that stands by the road,"* later identified as located at the Place of Ball Game Sacrifices. It is a calabash tree and bears fruit after One-Hunahpu's head is hung from the tree. It is likely that the tree by the road is a polar plasma plume, and thus One-Hunahpu's head is seen as the ball plasmoid at the end of the plume.

"By the road" implies the South Pole, for the ecliptic and equatorial were not seen in the north, and the "Place of Ball Game Sacrifices" was likely the gap in the Absu seen before 2349 BC, which has the cross section of a ballcourt with embankments on both sides. (This is also the image presented by the glyph meaning "ballcourt.")

Blood Moon, a daughter of one of the Lords, comes to visit the tree, and the skull of One-Hunahpu speaks to her, in yet another round of sexual innuendoes:

"Why do you want a mere bone, a round thing in the branches of a tree?" said the head of One-Hunahpu when it spoke to the maiden. "You don't want it," she was told.

"I do want it," said the maiden.

The skull of One-Hunahpu spits in her hand and she becomes pregnant with Hunahpu and Xbalanque. Six months later the Lords notice, and after she denies her pregnancy, *"there is no man whose face I have known,"* the Lords command the Messenger Owls to take her away, sacrifice her, and bring back her heart.

"Blood Moon" is actually Saturn in remote antiquity in a red glow condition sometime after what we call creation. Her name is a play on "blood" and "moon." The severed head, likewise, now is Uranus suspended above Saturn at a time when all the Saturnian planets could still be distinguished and seen in

separation with respect to each other, probably a time in the European Magdalenian period, around 17,000 ya, when the view of the Saturnian planets was elongated. Uranus would have hung at the top of the tree-like assembly. As usual, the *Popol Vuh* mixes details from events separated by tens of thousands of years.

Blood Moon talks the owls out of their task, substituting congealed croton sap for her heart. (Being clever is a prized personality trait throughout the Americas.) Blood Moon goes to live with the grandmother of One-Monkey and One-Artisan, and after being accepted by Xmucane, gives birth to the twins Hunahpu and Xbalanque. Hunahpu and Xbalanque are here most likely Venus and Mars, which show up when Saturn, initially pregnant, goes nova, *"they were born suddenly."* We can ask, how else is one born? But there was some need to point this out.

The *Popol Vuh* also states, *"They were born in the mountains, and then they came into the house."* I can't place the mountains, and much less the house, unless the mountains are a representation of the rings of Saturn (which also might be the house). It is also possible that these are earthly mountains, the mountains of Mexico and Guatemala at a time when the Olmecs had very likely migrated to western coastal Guatemala. From this new vantage point Saturn would no longer rise out of the sea, but would rotate into the sky from beyond the local mountains.

Hunahpu and Xbalanque

I won't recall their early childhood, or their contentions with One-Monkey and One-Artisan, who are turned into long-tailed monkeys by Hunahpu and Xbalanque. The monkeys clamber up a tree *"the kind called yellow tree."* Recall from the chapter "Saturn and Archaeology" the image of three European Gravettian figurines (27,000 to 24,000 ya), each in buff or amber limestone. This is the yellow tree. If, as I have pointed out elsewhere, satellites of some of these planets orbited in a pattern which alternately took them out and back into the enclosing plasma of Uranus, they would most likely look to have long connecting tails to the plasma. Monkeys, indeed.

What stands out is a later activity, the cultivation of a patch of ground by Hunahpu and Xbalanque. They arrive with their blowguns, and set a mattock and hoe in the ground, and place an axe in a tree trunk. The gardening implements proceed to cultivate the ground by themselves while the boys go hunting. The

cultivation of the patch of ground is paralleled by information of Book 10 of the *Chilam Balam* which details the First Creation:

"Then came the beating of (things) with wood and stone."

-- Book 10, *Chilam Balam*

As I have pointed out, this implies a rotation, or at least a rocking of the Saturnian polar configuration as seen from Earth -- not the rotation of the planet itself, but the rotation of Saturn about the North Pole, so that Venus, the stone, and Uranus, the wood, would also rotate. These two might easily pass for a mattock and hoe. (Book 11 of the *Chilam Balam* reverses the assignment to Venus and Uranus.)

The cleared garden, however, is put back to its original state at night by wild animals. Hunahpu and Xbalanque hide out to catch them in the act of reconstituting the weeds of the garden, but this action is never followed up on, for they catch a rat, who in return for his freedom only reveals the whereabouts of their father's rubber ball and gaming equipment among the rafters of their grandmother's house.

The Later Ballgame

One-Hunahpu and Seven-Hunahpu had been told by the Lords of Xibalba to bring their gaming equipment, but they had left it behind, stowed in their mother's house among the rafters. The grateful rat secretly chews through the binding to release the ball.

I would equate the rafters of Xmucane's house to the crossing of the ecliptic and the remaining equatorial ring, and the hung ball as the ball plasmoid at the end of the south polar plasma plume. This equates the release of the ball with a time of the equinoxes, when they would cross to form the rafters. A set of three ballcourt markers at Copan shows balls suspended from twisted cords at the north and south markers, each hung from a tree. At the center marker a ball is in play between Hunahpu and One-Death, the latter being the chief Lord of Xibalba.



Image: The ballcourt markers from Copan, circa AD 700. After Freidel and Schele.

The tree of the north is labeled "Nine Successions," the tree of the south is labeled "Seven Successions." There is no question that these represent the polar plasma plumes, labeled with the number of times they made an appearance. (The records of Palenque differ by one count for the northern plasma plume which is called "north-eight-house.")

The rat, in this case, would probably be Mercury, who played the mouse in the 686 BC drama of chewing through the noose of the Sun. The sequencing of the *Popol Vuh* is here not too badly off, for the rat's release of the ball happens between the earlier ballgame of 776 BC and the events of 685 BC.

The boys take extensive measures to make sure that their grandmother does not see the ball, although mostly it goes to prove their cleverness. There is a curious inclusion in the narrative of the boys seeing a reflection of the overhead rat and the ball in their chili sauce, at which point they send out their grandmother to fetch water. The "reflection" is likely to be the other plasma plume ball plasmoid seen hanging from the tree of the north. (The rafters would only show up in the south.)

After sneaking the ball and playing equipment out of the house (why sneak?), the twins go to play ball every day at the court of their father and uncle. Of course the Lords of Xibalba are again disturbed, and send messengers to summon the boys. The messengers arrive at the house of the grandmother, who entrusts the message to a louse, who is swallowed by a toad, who is swallowed by a snake, who is swallowed by a falcon.

The animals regurgitate each other, a pun on "recall," but the boys have to kick the toad in the rear to loosen the louse, demonstrating why toads do not have

tails. They hurry home and the boys plant a maize ear each, prefiguring their future death and rebirth with the death and sprouting of the maize, and tell their mother and grandmother to watch for such signs. Tedlock relates the ceremonial action to named Tzolkin days, including the disappearance of Venus on a following day. But the maize is planted *"neither in the mountains nor where the earth is damp, but where the earth is dry, in the middle of the inside of their house."*

The Planted Maize

Tedlock and his informant Andres Xiloj suggest that the "planted" maize is stored in the attic of the house, and represents a Quiche maize ceremony, the "winel," which, however, involves four plants, not two. (However, I have mentioned earlier, from current information from NASA, that the stems of the plasma plumes would have been seen in pairs, intertwined.) Despite the recognition of a current custom and ceremony in the details of the narrative, I think the proper interpretation only becomes clear later. The maize is not planted on Earth, but in the north and south of the sky. These represent the plasma plumes which were seen directly after the Earth shock of 747 BC, when the boys first arrived in Xibalba. These plumes soon disappeared, thus signaling the death of the boys to their grandmother. But 60 years later, in 685 BC, because of the altered electric field of the Sun, the plumes reappeared, signaling the rebirth of the boys.

"And this is their grandmother, crying and calling out in front of the ears of green corn they left planted. Corn plants grew, then dried up."

"And this is when they were burned in the oven; then the corn plants grew again."

The text reads that the grandmother "deified" the ears and named them. Four names are given, suggesting a connection to the "winel" ceremonies. The first pair of the sets of names is "Middle of the House, Middle of the Harvest" and second pair are named "Bed of Earth, Living Ears of Green Corn" -- as if to imply a celestial and an earthly maize manifestation. "Middle of the Harvest" is late summer or early fall, and "Middle of the House" probably signifies the fall equinox. In parallel, "Bed of Earth" might signify a horizon location above the land.

The first use of the four names has only a comma as a separator, but the following sentences which explain why the ears are so named, refers to them in the plural, although this does not mean much in translation.

"And she named the ears Middle of the House, Middle of the Harvest, because they had planted them right in the middle of the inside of their home."

"And she further named them Bed of Earth, Living Ears of Green Corn, since the ears had been placed up above an earthen floor."

Let me point out also the dark mode polar plasma plumes discovered by NASA in April of 2009 consisted of double plumes. I had not predicted double plumes, but the duality might be a function of the intensity of the plasma. Interestingly, I had predicted the polar plumes about a year earlier, and also assumed that they would be bending into the night side of the magnetosphere and rising up about 40,000 miles (64,000 km).

The plants grew, and then wilted. The first spurt of growth follows the change in Earth's orbit in 747 BC. They grew again after Venus and Mercury went nova in June of 685 BC.

To Xibalba

Meanwhile, after planting the maize ears, the boys hurry to Xibalba.

"They went down to Xibalba, quickly going down the face of a cliff and crossed through the change of canyons [a series of canyons mentioned earlier]. They passed right through the birds -- the ones called throng birds -- and then they crossed Pus River and Blood River."

The canyons, rapids, and rivers were elucidated earlier in this text. The "throng birds" have been identified as migrating Swainson's hawks, thus placing the travel of the boys either in spring or autumn. Only spring fits with the close passages of Mars (and Mercury) during the last of February or early March of 747 BC. Mars and Mercury will constitute the first four instances of the twins in Xibalba. The last appearance will be played by Venus and Mercury. [\[note 9\]](#)

Reaching the crossroads, now marked as Black, White, Red, and Green. Except for green, these are the directional colors associated with the cardinal directions noted in the *Chilam Balam* after 3147 BC, 2349 BC, and 1492 BC, the boys send

a mosquito ahead to bite the Lords, and as a result learn their names. The boys enter, and, to the chagrin of the Lords, ignore the manikins, greet the Lords by their proper names, and avoid the hot seat.

They are told to enter Dark House for their first night's stay, and, like with their father and uncle, are brought two cigars and a torch, and told to return them next morning. But the boys are more clever, and substitute a macaw feather for the torch and set two fireflies at the end of the cigars.

We should reasonably be able to locate the feather and fireflies with an ephemeris program, even though both the Earth and Mars would still have been on elliptical orbits. There would be little chance of locating Mercury correctly in the skies, since, as I have explained, Mercury changed its orbit radically in 686 BC. The problem is, we do not know when the boys entered the five houses, especially if the houses are zodiacal constellations which would take Mars and Mercury below the western horizon. It would in each case be some weeks, or perhaps months, after the first appearances of Mars and Mercury in the sky, although more likely it would be immediately.

Or not. Tedlock places the entry into the first house at 7 days after leaving their grandmother. Tedlock counts seven days from mention of a word pun on the Tzolkin dayname "Aj" and the word "Ja" -- meaning "house" -- when the twins instruct their grandmother in the planting of the maize (Tedlock, page 39). Seven days after "Aj" ("Ben" in Yucatec) is the day "Junajpu" ("Ahau" in Yucatec). Tedlock relates this, and additional day names, to the Dresden Venus tables, and to the repeating cycle of appearances of Venus, which first rises as the Morning Star on the day name "Junajpu" -- the name of the twin (Hunahpu) associated with Venus. (The pun is mostly lost on me.)

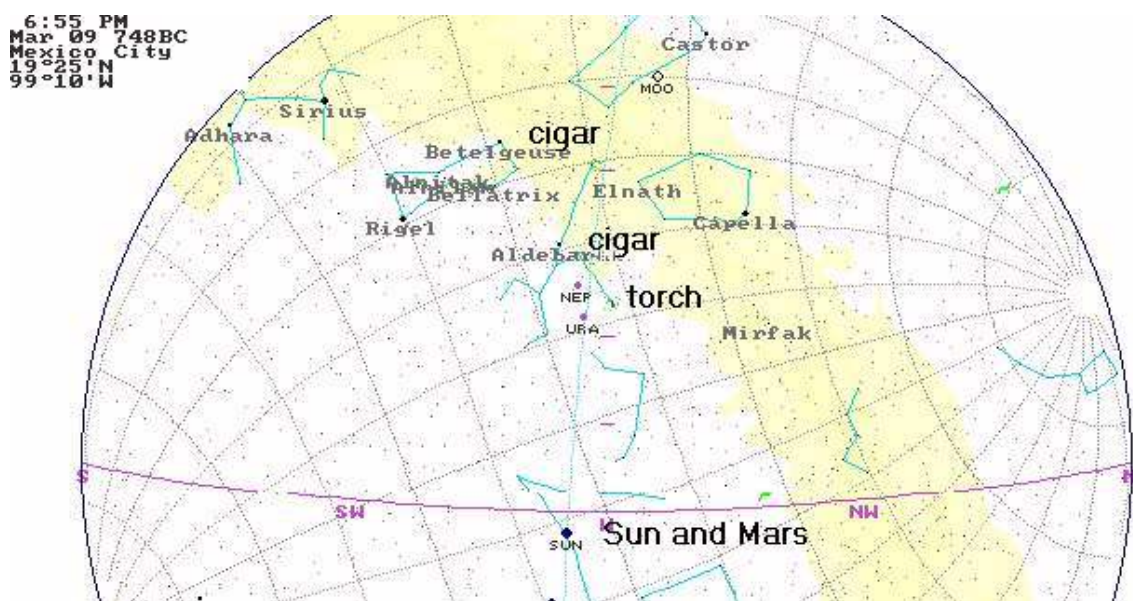
I think, however, that if we follow this course we would have to place the entry into the first house 7 days after the Earth shock of February 28th, 747 BC (March 8, 748 BC Julian), when they were commanded to appear in Xibalba. Seven days after the first day of the Long Count of, 6.0.0.0.0 11-Ahau, would fall on 6.0.0.0.7 5-Manik. This is not the Tzolkin day suggested by Tedlock. But the actors here are Mars and Mercury, not Venus and Mars.

I would otherwise agree with Tedlock, since nearly 2000 years later the events of 685 BC had been rationalized in terms of the high science of the Maya -- the Tzolkin calendar. Yet this would not have happened without solid data from the records of the past, the **"Council Book."** It is interesting that most of the concordances found by Tedlock involve the planet Venus, who definitely is one

of the twins involved in the immolation of 685 BC, but not at the earlier stays of the twins in the various overnight houses.

The "**Council Book**" was started by the Olmecs after February 28, 747 BC. This accounts for the fact that, although Mars (with Mercury) passed very close to Earth a total of nine times since 806 BC, only the last five "close encounters" are listed in the "**Council Book**" and only these show up in the *Popol Vuh* -- also represented, in fact, by the five graves found at La Venta. All the archaeological indications are that La Venta ceremonial center was initially built after 747 BC.

I would place the appearance in the first house -- the House of Darkness -- earlier than Tedlock does, because it seems likely that the torch and the two cigars, which were kept lit in Dark House by the twins, can be found in the sky. This event is clearly described in the text as the first of the test houses. I go now, to the first instance of February 28, 747 BC (March 8, 748 BC, Julian). Mars will not be seen in the night skies, for Mars is traveling in the daytime. At the end of the day on February 28th, after the Sun sets in the west, with Mars close by, the torch and the two cigars show up directly above the setting location of the Sun. I'll suggest that the Pleiades represents the torch. Since the Maya had identified the cluster M-42 as a fire within the "three hearth stones" of Orion, it seems reasonable to suggest a fire for the Pleiades also -- another close grouping of stars.



[Image: A torch and two cigars above Mars and the setting Sun; the Pleiades as the torch, the reddish variable stars Aldebaran and Betelgeuse

as the cigars. From SkyGlobe 3.6.]

The cigar tips might be represented by any of some five bright stars, all located above Mars and the Sun at this date. These are, from west to east: Capella, Elnath, Aldebaran, Betelgeuse, and Rigel. Interestingly, two of these, Aldebaran and Betelgeuse, are variable stars and either red or orange in color. They are also well above the equatorial, and thus unaffected by the remaining red equatorial ring, or by the shift in the location of the equatorial with respect to the dome of the stars after 685 BC.

... Bat House

When they reach Bat House (in 685 BC), the boys decide to sleep inside their blowguns, as a safeguard against Snatch Bats. It is the last house in the *Popol Vuh*, and here the "blowguns" are probably the appearance of plasma plumes at the north and south magnetic poles, the result of the Earth's contact with Mercury in 686 BC, in the year before the nova condition of the Sun which had Venus and Mercury blazing for 40 days.

This did not involve an increase in the orbit of Earth, but certainly the plasma contact changed the electric field of Earth, and polar plasma plumes were again generated, although they were probably limited. This in turn would suggest that the balls (or flower plumes) at the end might have been missing or, more appropriately, only appeared briefly. This is the last house before the twins will dive into the oven of the Lords of Xibalba.

The brief appearance of a terminal plasmoid shape would then explain Hunahpu sticking his head out of the blowgun to check if it is getting light yet, and losing his head to one of the Snatch Bats -- whatever those are. Thus the incident can be understood as the appearance of a ball plasmoid at the end of one of the plumes, which soon disappeared again. The boys ask Old Man Possum to delay the dawn, and work on finding a substitute for Hunahpu's head. I have covered the appeal to Possum to make the stripes and delay the dawn in the chapter "The Peratt Column."

Bat House might fall into the proper order as the last house if we recognize that four planets plus the Sun and Moon (not Jupiter) congregated at this time (685 BC) in Pisces, which is the constellation Bat (Bat House, thus) at the end of February of 685 BC. But aside from this coincidence, nothing much is defined.

Except that in the following few days, the Moon escapes this cluster and races toward the east as an ephemeris program will show.

The escaping rabbit looked like the rabbit who rolled away from the ballgame as a decoy at the boys request -- as if he were Hunahpu's head which was being used as the ball -- with the Lords in pursuit. This of course is another trick by the twins, which allows time to retrieve and restore Hunahpu's real head. You will recognize the Mesoamerican iconography of the rabbit of the Moon.

Bowls of Flowers

Additionally, we cannot neglect the four bowls of flowers which the Lords of Xibalba insist on as a prize before the first ballgame is played.

"What should our prize be?" asked the Xibalbans.

"It's yours for the asking," was all the boys said.

"We'll just win four bowls of flowers," said the Xibalbans.

"Very well. What kinds of flowers?" the boys asked Xibalba.

"One bowl of red petals, one bowl of white petals, one bowl of yellow petals, and one bowl of whole ones," said the Xibalbans.

The colors are of course the directional colors, except for west, which should have been black, but for which whole flowers are substituted. Now it is possible that what is meant here is the appearance of plasma plumes at the cardinal directions with ball plasmoids (the "bowls") at the ends of the plumes and trifurcated plumes above these (the "petals"). I can readily imagine this to be the case for the north and south magnetic poles, at least directly after 747 BC, but it is difficult to imagine plumes in the east and west. As I have indicated earlier, these might have been the sun-lighted portion of the last equatorial ring seen standing almost upright (at 20 degrees north latitude) in the east and in the west. It is possible that the "bowls" at the end of the east and west spikes of the equatorial rings is nothing less than the view into the denser portion of an equatorial toroid -- the Van Allen belt, which traps ions and electrons above the equator of the Earth. In the earliest representations in Sumer these are shown as narrow waving flags surmounted by a circle. In Egypt they are the two flag standards on the Palette of Narmer with hawks on top.

There may be a much simpler solution, for the *Chilam Balam* claims the approach of Mercury, at the same time as the close passes of Mars -- the reason why the planets Mars and Mercury during these two centuries are known

throughout the world as "the twins." I'll quote the relevant phrases here without comment. See the chapter "The Books of the Chilam Balam" for extensive speculation and comments on the meaning of these lines.

"With it descended Bolon Mayel [Nine Fragrances]; sweet was his mouth and the tip of his tongue. Sweet were his brains."

"Then descended the four mighty supernatural jars [or, two mighty demon bats], this was the honey of the flowers."

"Then there grew up for it the red unfolded calyx, the white unfolded calyx, the black unfolded calyx and the yellow unfolded calyx, those which were half a palm (broad) and those which were a whole palm (in breadth)."

"Then there sprang up the five-leafed flower, the five drooping (petals), the cacao (with grains like) a row of teeth, the 'ix-chabil-tok,' the little flower, 'Ix Macuil Xuchit,' the flower with the brightly colored tip, the 'laurel' flower, and the limping flower."

This cannot be either Mars or Venus, neither of which have a magnetic field, and would not support a "flower shape" above or below their poles. This is Mercury. Mercury probably comes as close to Earth as Mars did, but at a higher latitude. Here are the bowls of flowers, and although I count 9 flower types (representing the 9 appearances of Mercury of the *Chilam Balam*), only 4 would have been recorded in the "Council Book" for the period after 747 BC.

Of course the boys collect the four bowls by having cutting ants steal them during the night from the Xibalbans. Only four bowls of flowers are required. I would suggest that these might have represented prizes for the four games which are played. The first game of 748 BC (Julian) is played on Earth. The following four, 733, 718, 703, and 688 BC (all Julian), are played in Xibalba. But only three games are mentioned in the *Popol Vuh*. The boys lose one game, play one to a draw, and win the game involving Hunahpu's head. The ball playing instances do not add up, or there is something missing here.

Into the Oven of Xibalba

After surviving the overnight stay in five houses, the Xibalbans attempt to trick the boys into jumping into their oven. But the boys respond with:

"Watch!" they said, then they faced each other. They grabbed each other by the hands and went head first into the oven."

Following a suggestion among Tedlock's notes, the day in 685 BC when the boys faced each other, held hands, and jumped into the oven, can be found as June 15, Gregorian. It is a day when Venus and Mercury are in almost identical position to each other as the Sun and Moon. I have supplied the details of this in earlier text. June 15 is 40 days to the ending date, July 25, when the plasmoid from Jupiter landed -- the time span is specified by the *Chilam Balam*.

The boys had requested two daykeepers to suggest to the Xibalbans that their bones be ground up and sprinkled in a river. The river, as always and elsewhere, is the ecliptic.

"The bones were ground and spilled into the river, but they didn't go far -- they just sank to the bottom of the water. They became handsome boys: they looked just the same as before when they reappeared."

"And on the fifth day they reappeared. They were seen in the water by the people. The two of them looked like catfish when their faces were seen by Xibalba. And having germinated in the waters, they appeared the day after that as two vagabonds, with rags before and rags behind, and rags all over too."

"They just sank to the bottom" -- of course. The planets may have lost their blazing looks, but they retained their shapes as star-like objects and remained on the ecliptic. Neither Venus nor Mercury was near the earth shortly after July 25, 685 BC, so they would most likely, except as noted below, have taken on their star-like shapes like today.

"On the fifth day they reappeared" -- The four-day delay is likely a spectacular blazing of the Sun, perhaps lasting four days, and certainly obscuring any planets near the Sun, both during the day and the night. The Sun must have totally disappeared, and this might initially have suggested the end of the Sun, and creation, since the three planets visually near the Sun -- Venus, Mercury, and Mars -- all disappeared. The five days of a missing Sun are noted elsewhere also. A number of Mesoamerican sources state that Quetzalcoatl (Venus) disappeared for four days after setting himself on fire. In the chapter "The Sibylline Star Wars" I wrote:

"... the plasmoid would have had a diameter of perhaps 1.5 million miles [2.4 million km]. That is twice the diameter of the Sun. The plasmoid would have engulfed the Sun. At an estimated length of 15 million miles [24 million km], the flash of the contact might have lasted 9 hours. It must have been seen all around the horizon, and the Moon [at night] would have lit up spectacularly. This describes the concluding event."

An event which would have made the Sun blaze for nine hours at a minimum, would have also taken some time to completely quiet down to the point where nearby planets could be seen again. But at that time the boys are seen as catfish, and then as covered in rags.

"[They] *looked like catfish...*" They did not. Catfish were seen, but these are more likely additional minor plasmoid bolts from Jupiter. Since these would have traveled in the ecliptic, they might easily be mistaken for Venus and Mercury, especially when it was unclear where these planets were. The catfish were seen while the day and night skies blazed with the reaction of the Sun to the initial plasmoid strike from Jupiter. Tedlock relates the catfish statement to catfish in the Great Hollow, and suggests that Xbalanque may have been a bass.

"They appeared the day after that as two vagabonds, with rags before and rags behind, and rags all over too." I would suggest, as always, that this is plasma expulsion from the two planets, remnants of the previous condition in arc mode, but now reduced to glow mode, and representing plasma plumes pointing away from the Sun and toward the Sun, and "all over too."

As itinerant entertainers the boys entice the Xibalbans into asking to be sacrificed and to be brought back to life. It is done. But One-Death and Seven-Death of the Xibalbans are not brought back to life, and with that Xibalba was defeated. The remaining vassals *"took the road to the canyon, in one single mass they filled the deep abyss,"* and they all surrendered.

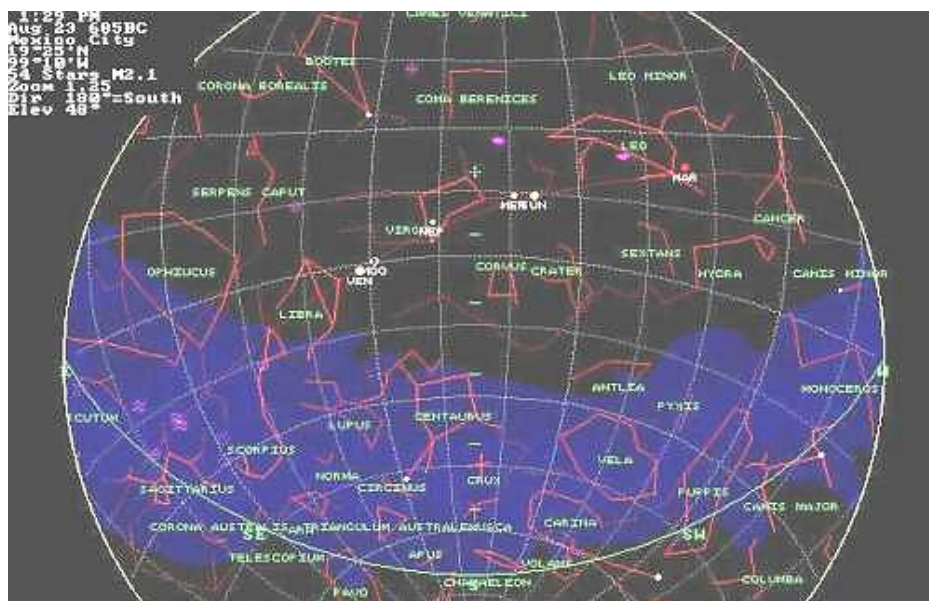
Hunahpu and Xbalanque set new rules for the behavior of the remaining Xibalbans. *"Such was the beginning of their disappearance and the denial of their service."* No humans would be attacked anymore.

I have wondered a long time about the Xibalbans, but at this point it becomes clear that the *Popol Vuh* is pointing to Mars and the Maruts which had devastated the world for over 120 years. Indeed, after Hunahpu and Xbalanque went up in smoke, the equinox changed by 15 days and the aphelion of the Earth

relocated and the orbit rounded soon after (Rose and Vaughan). Earth was no longer troubled by the companions of Mars.

Book 3 closes with the grandmother Xmucane rejoicing when the maize plants left behind by the twins sprout again. *"And this is when they were burned in the oven: the corn plants grew again."* We are seeing the polar plasma plumes, initially after 747 BC when the boys took off for Xibalba, and then again after 686 BC and 685 BC.

The boys also try to revive their uncle Seven-Hunahpu, but they fail. *"And then the boys ascended this way, here [that is, toward Earth], into the middle of the light, and they ascended straight on into the sky, and the sun belongs to one and the moon to the other."* It does not anywhere in the *Popol Vuh* say that they "turned into" the Sun and Moon, although this seems to be held as a popular uninformed reading.



[Image: The Moon near Venus, the Sun near Mercury, on August 23, 685 BC, Julian (August 16, Gregorian). From SkyGlobe 3.6.]

The suggestion that the Sun and Moon "belong to" the twins may be from the observation (by the original Olmecs) that after the start of the blazing on June 15, Mercury moves west to the Sun and stood on the right on July 25th and continued to get closer, while the Moon, originally next to the Sun, had moved east around the sky (three times) to end up next to Venus on August 16th. At that point the Moon is separated 3 degrees from Venus, and Mercury is separated 4.5 degrees from the Sun. This is why the *Popol Vuh* noted that "the sun belongs to

one and the Moon to the other." The other reason is that, as I have noted earlier, the Moon was close to the Sun when the twins first held hands and jumped into the oven.

Book 4: Tulan and the Seven Caves

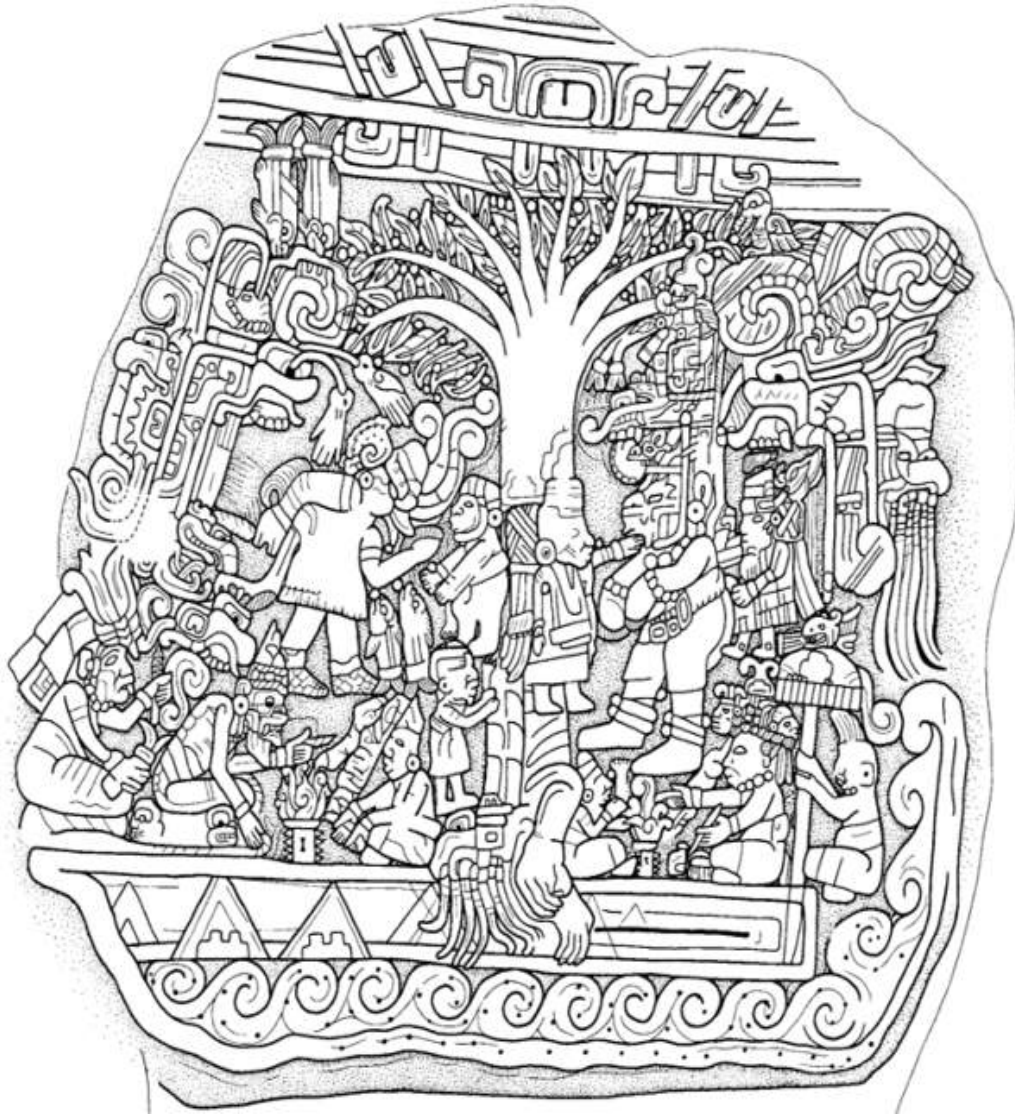
Humans are created, this time from maize mash. Wandering tribes visit the Seven Caves and Tulan, the City of Reeds, where they receive their tribal Gods. The Sun still has not risen.

The Cornmeal Mountain

The Gods of the north discover how to make humans from maize meal and water. Note that the Gods of the south are no longer involved. There is a reference to the location where the maize came from, called "Split Place, Bitter Water Place." Tedlock locates this as:

"The place in question is a high mountain just south of the Pan American Highway and near the Guatemalan border with Mexico, with a cave and a spring on its north side. Today the people of the surrounding region ... reckon it as the origin place of corn [maize]."

Perhaps the location of the origin for humans has been localized in the *Popol Vuh* or at least the source of maize has been found. The text mentions a mountain, filled with maize meal and foodstuffs. However, I am more inclined to view this piece of information as anecdotal. (Stela 5, a sculpture at **Izapa**, dated to about 300 BC, shows the five Gods of creation extracting humans from some sort of tree and mountain.) It is never mentioned again. The "seven caves" are substituted for the location of human origin, a concept held by the Toltecs and also adopted by the Aztecs. It might be suggested that the "seven caves" were added from these later sources, except that the Inca also held that humanity originated from caves, localized by the Incas, as apparently do North American tribes. More on this later.



[Image: Izapa, Stela 5, dated 300 BC to AD 250. The imagery is from the "Popol Vuh." On either side of the tree are Hunahpu Possum and Great White Peccary; bottom left: Xmucane and Xpiyacoc; right bottom: Sovereign Plumed Serpent. Bottom part of the tree represents the inverted cayman of the Maya. After Jason Jones, "Middle Eastern Influence on Mesoamerican Temples" (internet, 2012).]

The maize meal (corn meal) used in the manufacture of humans is provided by Xmucane, the grandmother of the ballplaying twins. This places the maize-dough mountain in the era after 4077 BC.

"And then the yellow corn and white corn were ground, and Xmucane did the grinding nine times."

Andres Xiloj comments that nine grindings is excessive. Three grindings produces a fine powder. But the text is being misread here. Xmucane did not grind the same maize nine times, but on nine separate occasions ground maize. This is fully in line with the doings of Bolon Dzacab ["Nine-Lives," Mars] during the period of 4077 BC to 3147 BC. Nine times a stream of white powder extended from Saturn to Earth, and nine times Bolon Dzacab ascended the plasma stream to Saturn, leaving a mountain of corn meal in the north Atlantic (or Hudson Bay). The parallel details are given in Book 10 of the *Chilam Balam*, where it is noted that:

"Then a mass of maize-dough with the tips of corn-cobs remained here on earth."

The mountain of abundance is identified in like manner by the *Chilam Balam* as a list of foodstuffs:

"Then shoots of the yaxum tree were taken. Also Lima beans were taken with crumbled tubercles, hearts of small squash-seeds, large squash-seeds and beans, all crushed."

"He wrapped up the seeds (composing) this first Bolon Dzacab ["Nine-Lives," Mars], and went to the thirteenth heaven."

"Then a mass of maize-dough with the tips of corn-cobs remained here on earth."

This perhaps describes the pockmarked lower surface of Mars, and the nine trips upward, which in each case left behind a giant dome of water vapor clouds. The "tips of the corn-cobs," with an alternate reading of "the tips of his bones" (Bolio), are likely the fluted areas of the cloud, which are also known, I think, as "the seven caves."

The Four First Fathers

The first four people, the first fathers, were created, modeled, at this time. They were named Jaguar Quitze, Jaguar Night, Not Right Now, and Dark Jaguar. This will turn out to be a strange reading of the records of antiquity, for it soon becomes certain that the four first fathers are the four beams of electrons seen overhead in the sky.

"Perfectly they saw, perfectly they knew everything under the sky, whenever they looked."

"The moment they turned around and looked around in the sky, on the earth, everything was seen without any obstruction."

"They didn't have to walk around before they could see what was under the sky; they just stayed where they were."

"They sighted the four sides, the four corners of the sky."

Their vision was perfect, and the Gods soon realize that their sight had to be limited or they would *"become as great as gods."* Heart of Sky (the Gods of the south) marred their eyes:

"they were blinded as the face of a mirror is breathed upon. Their vision flickered."

The "flickering" is an interesting addition, for it suggests that the four electron streams turned on and off at times. These interruptions could not have been all that long, for the Olmecs didn't consider a change in the heavens until it was certain. We can surmise this from the initiation of various calendars and the determinations that an era had definitely ended. I have made note of this in prior discussion of the institution of the Tzolkin (2349 BC), the Haab (1492 BC), the modified Haab and the start of the Long Count (both at 747 BC).

This also suggests that perhaps the "placed three times" of the *Chilam Balam* happened all within the first long period. Would not be unlikely for their lack of time and sequence specific narratives.

Although the maize-mash mountain from which the first humans are derived dates from circa 4077 BC to 3147 BC, the four streaming beams of electrons, which are here equated to the first humans, are dated to the period (as best we know currently) of 10,900 to 8347 BC. They flickered says the *Popol Vuh*, but more likely the ball plasmoids collapsed three times.

Daniel G. Brinton, in *The Annals of the Cakchiquels* (1885), writes about the origins of the Guatemalan tribes, based on earlier researches by Francisco Antonio de Fuentes y Guzman (in the 1600s):

"Indeed, none of these affined tribes claimed to be autochthonous. All pointed to some distant land as the home of their ancestors, and religiously preserved the legends, more or less mythical, of their early wanderings until they had reached their present seats. How strong the mythical element in them is, becomes evident when we find in them the story of the first four brothers as their four primitive rulers and leaders, a myth which I have elsewhere shown prevailed extensively over the American continent, and is distinctly traceable to the adoration of the four cardinal points, and the winds from them."

The "early wanderings" are likely an identification with records of a multitude of celestial objects, not unlike those recorded in Egypt and China as part of written records, but, perhaps as likely it parallels the cave paintings of herds of animals created since 30,000 BC in southern France and in Spain. In Egypt the objects in the sky are also identified as animals. In China and Mesoamerica they are crowds of people -- migrations in progress. If these tribes had pictorial records, then an identification with the only events in antiquity which were deemed worthwhile enough to record, could easily be made. The sight of objects seen in the skies can be believed, for with the *Popol Vuh* we also have a record of the endless darkness (or shadow), the cold rains, and the lack of food (and even the fall of tar-like substance) -- which can be substantiated from archaeological and climatological records of the Younger Dryas period.

I would disagree with the "adoration of the four cardinal points." To assign the four brothers or first fathers to the four streaks of electrons passing overhead periodically, perhaps for periods of decades or hundreds of years, makes much more sense now that we have details of the Peratt column. That these four first humans or first leaders reappear in the legendary records of other Guatemalan nations only goes to prove that they all have a common source -- they were seen. Brinton suggests that these nations have been in Guatemala for 2000 years, based on language differences and their own legendary records, but he could only trace ancestors back to about AD 1380.

The four first fathers received wives, who just "came into being." And people multiplied, not only the first four couples, but others also. Tribal names and lineages are recited by the *Popol Vuh*. *"There came to be many peoples in the blackness; they began to abound even before the birth of the sun and the light."* All these people were in the east. "The east" is repeated any number of times, plus the identification of "in the grasslands." [\[note 10\]](#)

If this describes the original location of the Mesoamerican people, or, more likely the Olmecs, it would represent northern South America, perhaps Venezuela ("grasslands"). The tribes of South America migrated west and north (by canoes) with the change in the latitude of the tropic and sub-tropic climatic zones after 9000 BC. Initially the climate after 10,900 BC was one of incessant rains. Then the rains stopped and the grasslands dried out. This happened in tropical South America just as it did in Africa.

The home in the east is associated with a citadel named "Tulan," the place of reeds, as well as "Zuyua," a name which has remained unidentified (except to mean "twisted" as in the linguistic use of riddles), and the "Seven Caves, Seven Canyons." This last is probably the fluted dome of water vapor seen in the far north, rising above the ocean after 4077 BC, even if it is always combined with Tulan in the *Popol Vuh*. The "Seven Caves" belongs to the genesis mythology of other American indigenous people also, not the least of which are the Incas. That it happens in North America also is the result of a repopulation of the USA from Central America and the Caribbean [\[note 11\]](#)

"Tulan," or Tollan, on the other hand, is most likely the equatorial rings in the south ("the house of bushes" in the *Chilam Balam*). From the latitude of 7 to 10 degrees in northern South America the reeds -- the equatorial rings -- would have stood up high in the sky. A migration after 7000 BC to Central America, to a latitude of 15 to 22 degrees north, would have changed the view of the rings, bringing them considerably lower in the sky. There would be no question that the "place of the reeds" had been left behind. And still during the year the shadow of the Earth would be placed on the rings, forming an opening into a hut or a building. A place left behind. [\[note 12\]](#)

Waiting for Dawn

They continue to wait for the first dawning. They pray to the "god in the sky." Heart of Sky is identified, but so are the entities in the north, with "Newborn Nanahuac" added. Tedlock points out that this is the Aztec deity Nanahuatl, "who throws a thunderbolt to open the mountain containing the first maize," where "Nanahuatl" means "warts" in Nahuatl. This clearly is Mars, seen close enough to Earth to show its pockmarked southern hemisphere. [\[note 13\]](#)

The "opening of the mountain" is referred to in Book 11 of the *Chilam Balam* as "*And its word was a measurement of grace, a spark of grace, and it broke and*

pierced the back of the mountains." This can be explained in context, quoted from the chapter "The Olmec Record of the Past" as follows:

This recounts the lowering of Mars to Earth. ... The plasma dome (or dome of water vapor) in the northeast [or north] is described as a mountain or a monument base. "Holes" are bored in the mountain, suggesting that, from the latitude of the Yucatan or Guatemala, Mars would have been seen as disappearing behind the "mountain" -- "occluded" would be better description. The holes in the mountain are the fluted areas, described earlier.

The Tribal Gods

Still waiting for the dawn, and while in the east, they hear of and go to a citadel. The citadel, here called a "mountain," is named Tulan Zuyua, Seven Caves, Seven Canyons. And here they receive their tribal gods.

"And they reached there at Tulan, all of them, countless people arrived, walking in crowds, and their gods were given out in order."

The first four fathers of the Quiche nation receive Tohil (Mars), Auilix ("Lord Swallow," Mercury), Hacauitz ("Bald Mountain," Jupiter), and Middle of the Plain. This last might be the Moon, although it is uncertain. That Tohil is Mars is without question, both etymologically (see Tedlock) and from his functions. Later Classical inscriptions assign this name to the "manikin scepter," which, although I would assign it to Venus, is identified as God K or God GII, which I have assigned to Mars. Auilix is the swallow, the bird. From Eastern Mediterranean use it would have to be Mercury.

The etymology of Hacauitz reduces to "a clear space" and "mountain" ("witz"), meaning a bald mountain. I have little doubt that this is Jupiter in his mountain form, brilliant enough to shine through the rings of the Absu, and can thus be located in a "treeless clear terrain." (There is also the suggestion that Hacauitz means "First Mountain.")

Middle of the Plain remains unidentified, but since Hacauitz shows up most notably after 2349 BC, at the same time that the Moon appears, I would guess that Middle of the Plain is indeed the Moon. Nothing more is ever said of Middle of the Plain. Further references to the Moon are to a Deer God, which, as

I have already noted for Book 10 of the *Chilam Balam*, is also most likely the Moon.

What is more interesting is that in the paragraph immediately following, the gods of other tribes are listed, the Tams and Hocs. It is Tohil (Mars). The *Popol Vuh* then goes into a justification of why this was so, that is, why many tribes have Tohil as their God. Other tribes are mentioned, including "the Mexican people." Their languages changed when they left Tulan.

The assignments of the tribal Gods is placed in remote antiquity, long before Saturn lights up in 4077 BC, in the time of the "cold snap" of 10,900 BC to 9,000 BC -- the Younger Dryas. We are notified that there was no fire at Tulan, except that the Tohil tribes had fire, generated by Tohil.

There are constant complaints of the cold, and then of a great downpour (of rain and sleet). (Archaeologists have identified that the tropics received excess rains during the Younger Dryas; at least, at first.) The fires go out. The Quiche nation begs Tohil for the fire; it is given. The other tribes ask also, but are forced (by Tohil) to promise to have their hearts removed (in metaphorical language) in return for fire. They agree. This becomes the basis for future human sacrifices. [\[note 14\]](#)

There are more details in this Book. The various people leave Tulan Zuyua, still waiting for the dawn. Their travels are recorded: passing past a place called Great Hallow, a mountain called Place of Advice. *"There was nothing to eat, nothing to feed on."*

"And it isn't clear how they crossed over the sea. They crossed over as if there were no sea. They just crossed over on some stones, stones piled up in the sand. And they gave it a name: Stone Courses, Sand Banks was their name for the place where they crossed through the midst of the sea. Where the waters were divided, they crossed over."

"Where the waters were divided" describes the Absu at the time of the year near the equinoxes. Moses passed his people through the same divided waters.

They brought their Gods, Tohil, Auilix, and Hacauitz (Middle of the Plain, the Moon, is not mentioned). The tribal Gods are hidden, at the requests of the Gods. All this happens in darkness and cold. It is amazing how much of the *Popol Vuh* is given over to these descriptions.

The Dawning

And then the Sun rose. This is Saturn switching to arc mode in about 4077 BC. The sequence is incorrect, however. In the *Popol Vuh* the Sun rises directly after the shadow of the Younger Dryas ended in 9000 BC. But to have a newly rising sun dispel the darkness makes narrative sense.

"The sun was like a person when he revealed himself. His face was hot, so he dried out the face of the earth."

"... when the sun had risen just a short distance he was like a person, and his heat was unbearable."

"... it is only his reflection that now remains."

The Aztecs also had a notion that the present Sun seen in the sky was only a mirrored reflection of the actual Sun. The source for this came from the same set of ancient documents. As the *Popol Vuh* claims:

"As they put in the ancient text, 'The visible Sun is not the real one.'"

The text here suggests that Earth was relatively close to Saturn initially, and distanced over the next thousand years. The "Sun," as noted, rises only part way. At this point in time the tribal Gods suddenly turned to stone, as did many of the dangerous animals.

The tribal Gods are installed in hidden locations, Auilix (Mercury) in a canyon, Hacauitz (Jupiter) on a bald mountain or red pyramid, and Tohil (Mars) in the canyon of another mountain. The places are named as familiar localities, so that it seems that the narrative is now solidly placed in Guatemala. Interestingly, no mention has been made of Kukulcan (Quetzalcoatl), who is the earlier Sovereign Plumed Serpent, and certainly a major deity in Mesoamerica.

It is also interesting that the *Popol Vuh* at this point, now that the tribal Gods have been localized, attempts to tell us that Tohil is the same as the God of the Mexican people named "Quitزالcuat." Tedlock disputes this as an error on the part of the *Popol Vuh* authors and suggests it may be political. I agree, but it may also reflect that the authors just did not find any references to Kukulcan in their sources, yet this was a major deity of both the Aztecs (as Quetzalcoatl) and the other Maya (as Kukulcan).

A people called "Sovereign Oloman" (Sovereign Ballplayers) is mentioned again as staying behind in the east. This is likely to refer to the Olmecs (rubber people, in our naming convention), and would represent La Venta or Tres Zapotes. It is a reference to the later pilgrimage to the east undertaken by the Quiche, or actually another people who first obtained the insignias of office and the books for their own use.

At this point the translation of "east" ought to be questioned, for the cardinal direction indicated by "east" has switched a number of times from true east to north and back. This is, I suspect, the same confusion as in Egyptian mythology, where the phrase "direction where the sun rises" is always translated to "east" in rendering the records into English. The same in Greek, where "the land of the sunrise" -- Europa -- points to the northwest, not the east as seen from Greece. [\[note 15\]](#)

After the images of the tribal gods turn to stone, they still speak to the Quiche nation. They are seen in the form of young boys and, in fact, are seen bathing in the river. The river, of course, is the ecliptic. Without their earlier coma the planets became smaller visually. In the Mayan languages "small," or a diminutive prefix, is the designation for women and children (and thus for "boys" also). An enemy tribe sends two young girls, Lust Woman and Wailing Woman, to do their laundry in the river with instructions to seduce the boy-gods. Of course it is avoided through the intercession of the first four fathers.

The remainder of Book 4 is filled with tales of conquest and clever battle tactics. Some of it is reminiscent of the era of 747 to 687 BC, as, for example, in invoking four jars of bees and wasps as a weapon.

The Bundle of Flames

At the end of Book 4 the first fathers prepare to leave: *"We are going back."* The first fathers do not die, they simply disappear, after leaving behind instructions and the wrapped "Bundle of Flames." They say, *"We are going back to our own tribal place. Again it is the time of our Lord Deer, as is reflected in the sky."*

The reference to "Lord Deer," would place this in 2349 BC when the Moon (Lord Deer) first showed up. It makes little sense chronologically, though. Tedlock holds that "Lord Deer" is likely a day-name designation, one of the four days by which new years are known. It could thus be a metaphor for "the time has come." Tedlock also notes that the place they are returning to is not

identified as Tulan, or anywhere "east," and is likely the location from which they originally came. For the first fathers, this would be the far south. They also say they are advising those who came with them "from the faraway mountains."

Jaguar Quitze leaves behind a sacred object, the "Bundle of Flames." About the "Bundle of Flames," the *Popol Vuh* reads:

"It wasn't clear just what it was; it was wound about with coverings. It was never unwrapped."

The authors of the *Popol Vuh* are here wishing to make sense of the "Bundle of Flames," which is a representation of the Jovian plasmoid of 685 BC, but they simply do not know what it is. There is a sense of the importance of this covered object because it was one of the first fathers who handed it over.

I think the indication here is that the Quiche received their religious induction quite late compared to other tribes of the Maya and the peoples of the Valley of Mexico. The authors are misreading their sources and failing to understand them. From the confusion of the narrative, in the attempt to string together a cohesive story from disparate sources, it also looks like the books were received at third hand.

The *Chilam Balam* records a much more orderly sequence of all the same events (and dated) which are likely to be from the same sources, since many of the same details are presented. (There is no mention at all of the plasmoid of Jupiter in the *Chilam Balam*, except very indirectly.) But whereas the sequencing of events in the *Chilam Balam* closely matches the chronology already established from Eastern Mediterranean sources, the *Popol Vuh* does not. Part of this might be the result of the forced attempt to create a smooth poetic narrative of the story of the ballplaying twins. Even so, there are many details which go to support my original supposition, first gleaned from the *Chilam Balam*, that the people of Mesoamerica had records dating back tens of thousands of years.

Jaguar Quitze, Jaguar Night, Not Right Now, and Dark Jaguar instruct their sons to return, *"Go see the place where we came from,"* by which is meant Tulan (Tollan), and which is accomplished in the next Book.

"The nature of their disappearance was not clear," reads the *Popol Vuh*.

I'll say! The lines of electrons simply vanished, although they may have moved north with the ball plasmoids -- something which was actually recounted from a

much earlier time.

Book 5: The Quiche Nation

The second generation of Quiche make a visit to the east to obtain the insignias of chiefdom and copies of the writings of Tulan. The remainder of Book 5 deals with the political history of the Quiche in the last 500 years.

Three members of the Quiche nation go east:

"We are going east, where our fathers came from," they said."

After listing their names, Noble Two, Noble Acutec, and Noble Lord, the *Popol Vuh* reads:

"So these are the names of those who went there besides the sea."

followed by:

"... it was these same three who passed over the sea."

These are ambiguous statements, unless it is understood that "besides the sea" is meant as the other side of the sea. But the place is not identified as Tulan, Zuyua, or even as the Seven Caves.

"And then they came before the lord named Nacxit, the great lord and sole judge over a populous domain. And he was the one who gave out the signs of lordship, all the emblems."

Tedlock notes that "Lord Nacxit" is a title held by Quetzalcoatl in Nahuatl (Aztec) texts, and also that there is a Lord Nacxit mentioned in the *Chilam Balam* (Books 8 and 24) where Lord Nacxit is associated with the Itzas (who are the misidentified Toltecs).

The insignias of office include *"a canopy, a throne, a bone flute,"* and other stone-age paraphernalia, but not the "Bundle of Flames" which had been delivered by the earlier first fathers before they disappeared.

"So they came away bringing all these. Then, from besides the sea they brought back the writings of Tulan, the writings of Zuyua. They spoke of their investiture in their signs, in their words."

Tedlock points out two things. First, that "their investiture" is, literally, "that which has already entered," and, second, that the words "their signs" and "their words" refers to the characters (glyphs) of the writings of Tulan. It suggests that the three returning Quiche leaders proved that it was their destiny to assume leadership.

"When Noble Two, Noble Acutec, and Noble Lord came back, they resumed their lordship over the tribes."

This starts to sound like Noble Two, Noble Acutec, and Noble Lord are intruders who are imposing their authority. That is not an uncommon notion among archaeologists, clearly derives from the fact, as near as it known from the experiences of the Spanish invaders, that there were never any revolutions by the common people. But all this could have happened in remote antiquity, as can be gleaned from the fact that the *Popol Vuh* relates:

"This was when they were at Hacauitz. ... And they spent a long time there on that mountain."

Presumably "they" is the tribe, not the leaders. As I have pointed out earlier, the mountain called Hacauitz is the lower plasma outpouring of Jupiter. So the location at this point in time, when the emblems of lordship were obtained, is entirely imaginary. The trip east to obtain the "signs of lordship" would have happened before 600 BC as a pilgrimage by another tribe to La Venta by the sea. The other tribe was most likely the people of Monte Alban. But as recorded in the Books of Tulan, it would look as if the Quiche themselves had performed the trek.

The fact that the "Bundle of Flames" can be dated to 685 BC at the earliest, and, significantly, that it is not included with the listing of the insignias of office, is important in establishing the earliest date of a transmission of the Books of Tulan to other tribes in the region. What was still lacking after 685 BC, however, was a universal flux which would allow understanding the graphical books -- a script. The script was developed (as far as we currently can tell) at Monte Alban sometime after 600 BC.

Endnotes

Note 1 --

From Suzanne D. Fisher, translator of the text *Books of the Chilam Balam of Chumayel* by Antonio Mediz Bolio.
[<http://myweb.cableone.net/subru/Chilam.html>]
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Note 2 --

Tedlock mentions in an endnote that in an earlier edition (1985) he translated "The Light that Came from Beside the Sea," as "The Light that Came from the Other Side of the Sea," as other translators also have done. The older translation actually seems more reasonable, since this is the description of the lighting up of the southern ball plasmoids. These would appear nightly from behind (and shining through) the Absu, understood everywhere as a sea.

However, throughout the *Popol Vuh* and the *Chilam Balam* the rings of the Absu, which stood very high in the sky at 10 and 20 degrees north latitude, were never identified as an ocean. "Rivers" are mentioned in the *Chilam Balam*, however. At any rate, the light of the southern ball plasmoids would shine through the equatorial rings, since they were electrons in arc mode.

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Note 3 --

The *Popol Vuh* gives a rather lame excuse for sacrificing victims of other tribes by ripping out their hearts. It involves an unspecific promise to submit to this in exchange for fire, an exchange made in remote antiquity. The whole of this looks concocted, perhaps under the influence of Christianity, for the missionaries and Spanish conquerors banned the practice everywhere.

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Note 4 --

What is interesting about the diverse retellings (the *Popol Vuh* plus the Books of the *Chilam Balam*) of these phenomena is that it suggests that there were variations in the glyphic books from remote antiquity, so that perhaps separate groups of allied tribes each kept records. That in turn suggests a widespread and uniform literacy in the Americas in remote antiquity. It is as likely, however, that the diversity of the readings arose from the application of a single script, developed much later, applied with some divergence to the uniform graphical records at hand.

The authors of the *Popol Vuh* obviously read graphic depictions of events in the past, which may not have sported any text. They managed to put together a cohesive narrative from these images, with little regard for the original sequencing. We should be reminded, however, that much of this "story" preexisted among the Maya already for over fifteen hundred years -- as depicted in murals and vases. In 2009 some excavated painted murals, depicting the celestial twins in activities recalled by the *Popol Vuh*, were dated as being 2000 years old. Similarly, Stela 5 at Izapa in Guatemala (see the text), which depicts the five gods in the act of creating humans, is dated by Stirling, on the basis of its iconography, to between 300 BC and AD 250.

It was a story different from the theology of Teotihuacan which seemed to have centered on the sacrifice of Venus to save the world from destruction. The *Chilam Balam* also tells a different tale, closer to what I understand as an actual recounting of the facts.

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Note 5 --

This vase is known as the 7-God pot. At the same location there is a graphically similar pot which shows 11 Gods. Adding the four large satellites of Jupiter makes the sum add up to 11. There is also a rabbit-pot from Naranjo, where a rabbit has stolen the hat and clothes of God-L. God-L is Jupiter. His hat are the upper plumes, his clothes consist of the massive lower plasma outpouring. For interesting details, see www.wayeb.org/notes/wayeb_notes0030.pdf. Assuming that the rabbit is the Moon, this may be an image of the Moon after 2349 BC, identified at the Palenque inscriptions which claim that the Moon crowns herself ruler sometime after 2349 BC. It also suggests that Jupiter lost its plasma outpouring (as expected), which had been gained in 2349 BC, during the time of the appearance of the Moon. This furthermore suggests that the Moon, although it may first have been seen at close range in 2349 BC, only appeared in a regular orbit with Earth at a later date. See also www.mesoweb.com/pari/publications/rt10/creation.pdf for details.

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Note 6 --

Dwardu Cardona, in "Darkness and the Deep" (*Aeon* III), writes:

"Hesiod tells us that night preceded day: 'From chaos came black night, And night in turn gave birth to day.' Other philosophical myths from

Greece, reversing the process described by Hesiod, imply that darkness was first and from darkness sprang chaos. Others claimed that chaos and darkness coexisted, as, for instance, Aristophanes: 'Chaos and Night and black Erebus and wide Tartarus first existed.'"

Cardona notes that these reversals are seen in other myths also.

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Note 7 --

If we go by the decorated pot from the Classical Maya era (the "Blowgunner Pot" detailed in the main text), the scene changes. Hunahpu is shown on the right of the tree, and the constellation Scorpio is shown at the base of the tree, also on the right. The constellation Scorpio has the same name (and location in the sky) in Mesoamerica as in the Mediterranean region. To the left of the tree is the constellation Rattlesnake, equivalent to Sagittarius (not shown here).

There are 13 constellations in the Mesoamerican zodiac, representing 28 days each. They are shown in the corrupted *Paris Codex*. The assignment of names to the equivalent western zodiac is still uncertain, but Scorpio and Rattlesnake (along with Fish, Peccary, Bat, Vulture, and Jaguar) are well identified.

If the constellations are correctly identified and the tree is the Milky Way, then the view is from the south horizon, not the north. We cannot see Scorpio and Rattlesnake in the north skies. The placement of Venus (Hunahpu) to the right of the tree is correct (except for the timing of the rising of the tree), for the last visibility of Venus in June of AD 1235 would be in the west, actually the northwest, but still to the right of the tree as seen standing up from the south horizon. But this is not the date we are here concerned with. It is a date derived by Tedlock from the *Dresden Codex*, as noted in the text.

The view from the north horizon reverses the constellations if one were to follow the view of the Milky Way overhead, and would be rendered upside down with additional backward neck-craning. Only by doing the reverse, that is, by viewing the tree from the south horizon, are both the adjacent constellations and Venus placed correctly. Since the Milky Way stretches to the north (at some time of the day), the bird Ursa Major would be adjacent to the Milky Way (at some moment), although some 30 degrees removed. This also represents how Linda Schele sees the tree. In other notes (on the images at Palenque) Freidel and Schele are emphatic that Wakah-Chan, the world tree, rose in the north.

Of course, I would like to see recognition of the fact that the tree to heaven and the bird at its top appeared in the north, but especially that the tree rose from the north horizon. But this seems to have been lost to the intervening years. The actions of Hunahpu and Xbalanque have also been relegated to the mythological past. The "Blowgunner Pot" specifically states the event of blowgunning Seven-Macaw happened in what apparently is 3148 BC. The pot reads, *"He did it, Hun-Ahaw / on 1-Ahau / 3-Kankin / He entered the sky / Itzam-Yeh."* Hun-Ahaw is Hunahpu, Itzam-Yeh is Seven-Macaw. Freidel and Schele, in a footnote of *Maya Cosmos*, suggest a translation of "Itzam" as "water wizard" and "Yeh" as "giver." They also report from other sources that in the Classic Period "Itzam" is used only with the glyph for God D, which I have elsewhere identified as Saturn.

A day of 1-Ahau 3-Kankin can be dated to -1.18.4.5.0; May 28, 3148 BC (Gregorian, August 13 correlation), as was done by archaeologists. This would be the aphelion of the Earth's orbit, which today happens at around July 4th. This is 34 years before the retrocalculated date of 3114 BC for the end of the "second creation." The next 1-Ahau 3-Kankin happens on May 16, 3097 BC (Gregorian), 52 years later, and 17 years after the accepted retrocalculated end of the "second creation." It is amazing that archaeologists have selected a date before 3114 BC.

The year 3148 BC probably represent the actual closing of the previous era. My estimate of the correct date of the start of the current era, based on subtracting six Baktuns of 400 solar years from 747 BC, was the year 3147 BC. Here we have a Classical Era Maya inscription, suggesting 3148 BC -- a year different if I had properly started my counting with 748 BC. Other than this, I have not been able to backtrack the date on the blowgunner pot. This may be coincidence, since it is a retrocalculated date. The Haab was not added until after 1492 BC.

It is possible that some element of Mesoamerica knew the sunset location of the day of the release of Earth from Saturn. The Appendix "Celestial Mechanics" attempts to resolve this.

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Note 8 --

See Simon Martin, in "A Broken Sky: The Ancient Name of Yaxchilan as Pa' Chan" (*PARI Journal*, 2004). Martin does not identify the glyph with the "third creation," however, but he does elucidate the glyph used as the name for Yaxchilan. See also the chapter "The Day of Kan" for additional discussion of

the efforts of scribes at Yaxchilan to establish connections with the past.

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Note 9 --

"Migrant groups are noted in the southern states [of the USA] in March. The earliest Swainson's hawks arrive in southern Canada in late March." They are migrating north. -- wikipedia

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Note 10 --

The *Popol Vuh* here also mentions mountain people, all speaking the same language, which may, as Tedlock notes, identify the Quiche. The reference to mountains remains. Tedlock also notes that this might be an identification of the Quiche tribes as "rustic and small in numbers by comparison with the lowland Mayans." The settlement of the lowlands, that is, the Yucatan, did not happen until about 1000 BC. We are here in an era dated 10,900 BC to 4077 BC.

Tedlock also notes that at a later time the Quiche are described as "adorned with mere animal hides," and as hunters rather than farmers. All this applies during the Classic Era of the Maya. It may also represent the intrusion of occasional references to actual late historical conditions into the story of a mythological past which was being read from source books and was understood to represent the history of the Quiche in remote antiquity, even though in actuality it was a record of the history of another people from whom the books were obtained.

As an added note on the confusion which will surround the use of the word "east," it should be noted that a tribe known as "Oloman," a word which in Nahuatl means "ball player" (ollomani), remains behind in the east. Tedlock has another location in Guatemala in mind, but in the current context of Book 4 it is probably a reference to the Olmecs (rubber people) of La Venta, who stay behind in the east after the visiting dignitaries of Monte Alban return west with their insignias of office and copies of the sacred books -- a suggested series of events which I have already described in the chapter "The Chilam Balam."

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Note 11 --

If the Olmecs came from nearer the equator (like from Ecuador), they would have had a detailed view of the southern plasmoids, unobscured by the equatorial

rings. Then Zuyua, meaning "twisted," might describe the bunching of the lines of electrons at the plasmoids, and the twisting over the ball shapes. But they would have been much more impressed by the "happy face" of the nearest plasmoid.

Tedlock notes the similarity to the "Seven Caves" as a place of origins of the Toltecs or Aztecs (the Nahua), and points to the fact that many citadels include caverns dug under the aboveground structures of the Maya. At Teotihuacan in the Valley of Mexico this includes six side chambers, looking much like the chambered barrows of western Europe. From this it might be inferred that the "Seven Caves" originally were part of a Peratt instability of the northern plasma stream after 4077 BC, and looking also like the multilobed plant depicted next to the enthroned gods of Mesopotamian seals -- rather than the mountainous vapor dome at the north horizon.

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Note 12 --

Tedlock notes that the *Annals of the Cakchiquels* indicate that there are four locations of Tulan, one in Xibalba, one in the sky, and two on Earth -- in the east and in the west, which inadvertently describes a ring surrounding the whole of the Earth. The Annals also suggest that "Tulan Zuyua" of the *Popol Vuh* is the Tulan of the east, to where the tribes of the *Popol Vuh* travel to obtain their insignias. The *Annals of the Cakchiquels* is another Guatemalan document, originally dating to AD 1571, recounting the history of the Kakchikels nation, and an earlier mythology wherein the people also originated in Tulan in the east, although they originally set out from the west.

Brinton, in his introduction to the *Annals of the Cakchiquels*, writes:

"... we hear of the city of the sun god, Tulan or Tonatlan, as the place of their origin, of the land Zuiva [Zuyua] and of the Nonoalcos."

The separation of the city (Tulan) from a country (Zuyua) makes sense of the use of Zuyua both in the *Popol Vuh* and the *Chilam Balam*, although based (says Brinton) on Aztec mythology.

In fact, the *Annals of the Cakchiquels* do not use "east" and "west." The *Annals* read:

"And I shall write the sayings of our earliest fathers and ancestors, Gagavitz the name of one, Zactecauh the name of the other; and these are the sayings they spake as we came from the other side of the sea, from the land of Tulan, where we were brought forth and begotten by our mothers and our fathers, oh my children, as said of old the fathers, the ancestors, Gagavitz and Zactecauh by name, the two heroes who came from Tulan and begot us, the Xahila."

Three paragraphs later the *Annals of the Cakchiquels* reads:

"These are the sayings of Gagavitz and Zactecauh, and these are the very words which Gagavitz and Zactecauh spoke: "Four men came from Tulan; at the sunrise is one Tullan, and one is at Xibalbay, and one is at the sunset; and we came from this one at the sunset; and one is where is God."

"Therefore there are four Tulans, they say, oh our sons; from the sunsetting we came, from Tullan, from beyond the sea; and it was at Tullan that arriving we were brought forth, coming we were produced, by our mothers and our fathers, as they say."

Note that the fact that there are four Tulans is an interpretation by the narrator. As I mentioned in the text, the four locations probably describe the equatorial rings. But the city of Tulan is also obviously confused with the location of the origin of the people, the Seven Caves. It is interesting that the document locates Tulan on the "other side of the sea." "... we came from the other side of the sea, from the land of Tulan," and later, "we came to Tulan in the darkness and the night," and, after considerable travels, "and departing they arrived at the place called Tapcu Oloman." They "took counsel there," and "first unloosed our burdens."

As I have pointed out above, "Tapcu Oloman" is the place of the ballplayer. The Kakchikels are here recounting the migration of the Olmecs as their own. The "other side of the sea" might be the Caribbean Sea between northern South America and Central America, just as it may be the whole of the Atlantic. As likely the sea may be the Pacific ocean. And yet, the sea could as well be the equatorial rings of Earth.

Just to add one more twist, "coming from the west" might simply represent the migration of the Olmecs into Veracruz, Mexico, from the Pacific coast region of Guatemala.

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Note 13 --

The other name in the list which is new at this point in the *Popol Vuh* is "Falcon," although it is unclear if this is an epithet for Mars and is listed right after "Newborn Nanahuac, Sudden Nanahuac," or for Venus, whose names, "Hunahpu" and "Sovereign Plumed Serpent," follow next.

Tedlock in his glossary suggests Venus. An earlier use in the *Popol Vuh* of a falcon is the bird which would come to watch One-Hunahpu and Seven-Hunahpu at their ballgame, "*the messenger of Hurricane, Newborn Thunderbolt, Sudden Thunderbolt,*" which I suggested was the seated bird apparition seen in the skies long before 10,900 BC and again after about 9000 BC. In effect this was Saturn moving north from the equatorial region, but actually was Earth falling below Saturn's equator. This would have been seen as some huge object traveling from east to west daily or nightly for thousands of years, and progressively moving further north. (See the chapter "Saturn and Archaeology.") The "Falcon" also recalls the Egyptian Falcon deity, which is equated with Horus/Mars, and is used on top of the name-serekh of the pharaoh.

These suggestions do not resolve anything of the list of names. I think that the Falcon here might be Uranus seen with Neptune and Saturn. It may thus be an appellation rather than the name of a distinct God.

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Note 14 --

The same endless rains are recorded as occurring after the start of the darkness in Japanese mythology.

The lame excuse for removing hearts can only be justified by considering the dates when the *Popol Vuh* was written. It had to be an era where public opinion had turned against this practice -- after 100 or 200 years of enforced prohibition by the Spanish.

[\[return to text\]](#)

Note 15 --

Europa, "Land of the Sunrise," either points northwest to the plasma dome seen in the North Atlantic, or to the actual location where the globe of Saturn would first be seen moving up from the horizon if the rotational axes of Earth and

Saturn did not line up.

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Appendix A: Notes on Chronology.

\$Revision: 42.3 \$ (chron.php)

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[\[Parallel Histories\]](#) [\[The Calendar\]](#) [\[C-14 Radiometric Dating\]](#)
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The information below is a collection of various observations related to chronology developed in more detail than would have been appropriate as endnotes in the main text pages.

"I decided to believe, as you might decide to take an aspirin:

It can't hurt, and you might get better."

-- Umberto Eco *Foucault's Pendulum* (1988)

I should note that I rather indiscriminately mix historic and astronomical dates for antiquity and almost always list astronomical dates in BC notation. Astronomical dates are normally shown as, for example, "-747," which is the historical year "748 BC," but I often list this as "747 BC." In a few instances I quote dates from antiquity in the Julian calendar, but most times the dates refer to a backward extension of the Gregorian calendar. In a few cases, where more exactness might be called for, I have differentiated these. In all cases the dates before 747 BC are in Solar years rather than an actual count of days on the Julian or Gregorian calendar. The reason for using Solar years is explained in the chapter "The Maya Calendar" and also further below under Carbon-14 dating.

Additionally it should be noted that years in antiquity for the Eastern Mediterranean region differ by 4 years from actual years from Assyrian times through late Roman times (at least) and thus also differ from calculated years for China and Mesoamerica which are true to a real-time calendar. This has been known since the 19th century, but has been neglected by historians as too difficult to correct. For ephemeris calculations during this period I therefore have to select dates 4 years earlier, and sometimes five, to compensate for this error and additionally for the lack of a "year zero" among historians.

Additionally, dates on antique calendars are often at variance because different nations start the year at different seasons.

Dates from Chinese antiquity calculated in the 19th century AD by western archaeologists are correct to actual "historical" Solar years (and dates) if based on ephemeris information. [\[note 1\]](#)

Sources for Dates

I have kept a number of "exact" dates alive in the text, even though they are only estimates and may be inaccurate. Dates are hard to remember and recognize while reading unless they have a certain charm to them. Important dates are the following:

10,900 - 9000 BC -- The Younger Dryas

Earth, on an orbit laterally offset from Saturn, made electric contact with Saturn in 10,900 BC, causing an initial 1500 years of darkness and cold, and a total 2500 year period of shadow. This incident is discussed by Firestone, et alii, in 2001 and 2007 in two papers and a book. The initial 1500 year period represents the coldest climate the Earth has ever experienced. Large animals disappeared from the Earth. The Clovis Point culture of America ended. This was also the universal "darkness at the beginning of creation" of mythology.

The dates are from climatological records, and are for the northern hemisphere. In the southern hemisphere (which is largely tropical) the Younger Dryas ends a few hundred years earlier.

10,900 BC -- The start of the "first creation"

Earth entered the oma of Saturn in 10,900 BC. The Peratt column developed along with the southern plasmoids.

The date of 10,900 BC is thus the start of the "first creation" as can be inferred from the texts of Maya stelae and from physical conditions. This is the "creation" noted as "the first image of the turtle." The turtle is the far southern plasmoid of the Peratt Column. The placement of the "three stones" likely represents the same objects. These are the only references to an earlier event ever represented on Maya stelae.

This date is two periods of 13 Baktuns (twice 5200 Solar years) before the date of 3147 BC. I have used 3147 BC instead of 3114 BC after taking into consideration how the Olmecs instituted the Long Count in 747 BC.

As I have pointed out earlier, I finally realized what the Maya were talking about when they inscribed on many stelae what they had gleaned from their books:

"And then the past epoch ended. On 4-Ahau 8-Cumku [August 13, 3114 BC], 13 Baktuns were completed."

"On 4-Ahau 8-Cumku, was (first) seen the image of the turtle."

In the philosophy of the Maya, all events cycled through periods of time, so that the event of 13.0.0.0.0 was equivalent to the event of 0.0.0.0.0 -- 5200 years earlier, in 8347 BC, or -13.0.0.0.0 in 10,900 BC. The date of 3114 BC for when "the epoch ended" was added to the above inscription by archaeologists.

It is confusing that two periods of time both ended at a count of 13 Baktuns. This is true especially to archaeologists. Only because we learn about the image of the turtle, can we jump to the conclusion that this was meant to designate the start of the "first creation" in 10,900 BC.

That the predecessors of the Olmecs had kept tallies of years since that time, and from much earlier, is certain from the contents of some books of the *Chilam Balam* and clear from the *Popol Vuh*. This year (10,900 BC) can also be assumed to set the date for the earliest Peratt column and the ball plasmoids of the south.

8347 BC -- End of the "first creation"

The period after 8347 BC would be known as the "second creation." Another 13 Baktuns passed before 3147 BC was reached. In 3147 BC the polar configuration came apart, and a third epoch started.

After about 9000 BC, when the effects of the Younger Dryas ended, the climate improved markedly in the northern hemisphere since the Earth's orbit was considerably below the level of Saturn and the Sun.

However, tropical and temperate climatic zones started to move hundreds of miles north, moving the tropical wet zone to the level of the Sahara, moving the dry zone into the Mediterranean region, and improving conditions at the north polar regions.

In 4077 BC Saturn went nova and started to blaze. The coma of Saturn dropped, and Saturn and the intermediate planets Mercury and Mars were clearly seen. A plasma stream from Saturn reached to Earth. The southern ball plasmoids had come to an end in 8347 BC.

This would have been a radical change in the celestial environment, but no notice is taken of this (as I currently understand it, except in the *Popol Vuh*). The last 1000 years of this period is what we call the "Era of the Gods."

3147 BC -- end of the "second creation," end of the "Era of the Gods," the world flood

I originally used 3114 BC as the date for the end of the "Era of the Gods" because it was a well-known date derived by retrocalculation from the Maya Long Count calendar -- even though it is based on the projection of our current Gregorian year into remote antiquity, and would thus be incorrect by 33 years. I have changed this in favor for **3147 BC**, a value correct in terms of solar years. It is based on subtracting 6 Baktuns (400 year periods) from the date of the inception of the Long Count in Mesoamerica on February 28, 747 BC (-747), which is listed as 6.0.0.0.0 in Long Count notation. I am sure the year is correct, but I do not know the exact calendar date.

This also allows specifying exactly when it was that this round of 13 Baktuns of the Olmec calendar had started: 5200 years before 3147 BC, 8347 BC.

The date of 3147 BC (or, for that matter, 3114 BC) more or less matches the start of eras elsewhere, as in India. It predates the first Egyptian dynasty by 50 to 100 years. It also coincides with a marked lapse in cultural development in Northern Mesopotamia, and it predates the first kings of Kish in Mesopotamia (as developed below). Additionally it seems to mark a change in climate worldwide, today called the Hypsithermal.

2349 BC -- The end of the "third creation," the "flood of Noah," fall of the Absu

The date is from the chronology developed by Bishop Ussher, in *The Annals of The World* (in AD 1650), and represents the date he assigned to the flood of Noah, even if there was no flood, or Noah. The date is convenient in that it is well known among Bible chronologists. The date also matches, within a decade or so, the chronology of China (as developed by the Han dynasty in about AD 200). The brief records of Mesoamerica as reported in the *Chilam Balam* are not accurate on this, however, although the reason for this is easy to find.

Events and celestial manifestations for the date of 2349 BC (or something close to it) certainly match across all continents, all in terms of a giant plasmoid (a "dragon") arriving from Venus, seen and recorded piecemeal and in turn by India, the Middle East, Egypt, Mesoamerica, and China.

The worldwide assignment of the culmination of the Pleiades to mark the remembrance of this event in early September, when Jupiter made a sudden reappearance on the third day, also depends on this date.

There are, in fact, four electric contacts by Venus during this period of 2349 BC to 2193 BC, 52 Solar years apart. The last, of 2193 BC, brought a 200-year climatic downturn to Mesopotamia and Egypt. This last event is fairly well dated from archaeological sources, and thus validates "2349 BC" if the 52-year intervals hold also. The number of so called contacts or near contacts with Venus can be surmised from Egyptian and Mesoamerican sources -- some only depicted graphically.

1492 BC -- Exodus of Moses, Typhon

The date is from Immanuel Velikovsky, in *Worlds in Collision* (1950), and is verified from numerous medieval chronographers to within a year or two (and even by Josephus in AD 100). Moses can be placed to the time of the 12th Egyptian dynasty if the one "Sothic date" for Senusret III is dropped as a total fiction. The event of 1492 BC shows up assigned to the proper Katun (20-Tun-year period) in the *Chilam Balam*. Egypt's Middle Kingdom came to a sudden end, Indian civilization seemed to disappear, China's Shang dynasty stopped

recording history for a hundred years, and relocated its capital. Mesoamerica has the same complaint as the Bible of "walking in darkness" or under a heavy overcast for 40 years or for a generation.

The occasion gave rise to the "myth of Typhon." A second, lesser, interaction happened 50 (not 52) years later, 1442 BC. The Sun stood still for Joshua. The periodic interactions with Venus had changed.

747 BC, February 27th -- Change in the Calendar, Mars

The date of 747 BC (actually -747) is also originally from Velikovsky in 1950, and verified by such diverse sources as the start of the *Babylonian Chronicle* by Nabonassar on February 27, 747 BC. Known as the "Era of Nabonassar" this chronology was promoted by Ptolemy in about AD 150 as a means of record keeping for celestial events, and remained in use to about AD 1600. The Romans rationalized their calendar on February 28th. The Olmecs started the "Long Count" on February 28, 747 BC, and added 5 days to the 360-day Haab year (for the purpose of the Long Count, 360-day years continued to be used for the past). The number of nations who had a 360-day calendar in use before 747 BC is extensive.

There were a total of nine "close calls" by Mars during this period, from 806 BC through 687 BC. This was first hinted at by Velikovsky, and asserted by Patten and Windsor (although I disagree with some of their dates and with their mechanics). It is also certified by Olmec records -- although in their strangely curious way of naming planets with a numeric prefix. Mars would have appeared inside Earth's orbit at 15-year intervals. A graphical ephemeris program -- a luxury tool not available to researchers in the 19th century and most of the 20th century -- will show that this could happen (but of course showing Mars outside the Earth's orbit). Mars could show up inside Earth's orbit if the eccentricity changes -- which does not change a planet's period.

An incident in 686 BC also produced an Earth shock. Velikovsky (and Patten and Windsor) had trouble attributing this event to Mars, and could not determine the correct date. An ephemeris program will show that it was caused by Mercury -- as verified by Plutarch in about AD 200. The date, in fact, can be obtained from two Chinese records as March 23. The ephemeris, which even if it cannot be entirely correct

for Mercury at this particular time, places Mercury in line with the Sun to within 1.1 degree in azimuth and 0.1 degrees in altitude on March 20.

685 BC -- Change in the axis, a bolt from Jupiter, fall of Phaethon

The year of 685 BC was found directly from the graphical ephemeris program by matching the description of *The Sibylline Star Wars* document of circa AD 150. Initially I had no clues other than the analysis made by Franz Xavier Kugler in 1927.

To find the *year* I matched the Mesopotamian *Venus Tablets of Ammizaduga*, which describe the event, against the political activities of Assyria and Babylon during those years. Thus I closed in on 684 or 685 BC. This event is the "myth" of Phaethon, who, as Mercury (also mentioned by Hesiod), was struck by a thunderbolt coming from Jupiter, which actually was destined for the Sun. Travel of the plasmoid lightning bolt was seen and recorded worldwide.

specific seasonal dates, 2349 BC, 1492 BC, 747 BC, 685 BC

Specific dates were found from site alignments in Mesoamerica, and for the year 685 BC from the *Chilam Balam*. I looked at 13 Olmec and Valley of Mexico sites and found over 70 instances of six alignments which remained the same from site to site and determined the setting location of the Sun by date (plus the setting of the Pleiades). Sorting through these and comparing them to approximate dates and hints from other sources it quickly became obvious that these represented the ending dates for eras: 2349 BC, 1492 BC, and 747 BC. Thus, although the year dates I have listed will in some instances be estimates, the seasonal dates are accurate.

For the event of 685 BC the actual dates in the months of June and July can be found. Along with a hint from the Quiche *Popol Vuh*. A breakthrough came from a closer look at time spans (four of them plus an equivalent Julian-year date!) listed in the Maya *Chilam Balam*. This information resulted in concrete seasonal dates: the date on which Venus and Mercury started to blaze in the skies in June, the date of the release of a 15-million-mile-long (24-million-km-long) lightning bolt (plasmoid) from Jupiter, and the date of its arrival at the Sun in July. These last three also allowed tracing the actual events recorded in *The*










Sibylline Star Wars document. From an Australian Aboriginal myth we can determine the arrival time of the plasmoid to within two hours, and closer yet from *Beowulf*.

The Kings Before the Flood

The earliest portions of the Sumerian *King List* probably date from shortly after 2700 BC, but our copies were transcribed from these earlier sources sometime after 2000 BC and did not come to light until after AD 1900. A conforming copy of the *King List*, however, was extant in Greece since about 280 BC, having been brought from Babylon to Greece and was quoted subsequently by Greek authors. The record was at that time already 2500 years old. The Sumerian *King List* has clear parallels in the Bible and in Egyptian records, and less so in Chinese and Vedic mythology, all of which are addressed in the section "Parallel Histories," below.

The first section of the *King List* deals with the "kings before the flood" and is the oldest historical document in the world. (Sections of the Maya *Chilam Balam* recall earlier times, however.) Despite its peculiarities, it should not be neglected. The main question has always been, why the long rule lengths? The large numbers for the rule lengths of the "kings before the flood" are derived from the Sumerian use of the symbol "sar" which has steadfastly been reported since Greek times as representing "3600" -- supposedly 3600 years. A "sar" does have the value of 3600 in Sumerian enumeration, but it does not necessarily mean a "year." As noted elsewhere, a "sar" also means "turn" or "day." [\[note 2\]](#)

In Assyrian times (after 800 BC), the calendar of 360 days uses a "sarus" to represent a decade (what we would call 10 years), where a "sarus" is identified as 3600 days. The fact that a "sarus" was still in use in Assyria in the 8th century BC, and meant 3600 *days*, not *years*, is good reason to suggest that the list of the "kings before the flood" is recorded in *days*, not *years*.

King	Sexagesimal		Cuneiform
Alulim	28,800	8 x 3,600	
Alagar	36,000	10 x 3,600	
Enmenluanna	43,200	12 x 3,600	
Enmengalanna	28,800	8 x 3,600	
Damuzi	36,000	10 x 3,600	
Ensipazianna	28,800	8 x 3,600	
Enmenduranna	21,000	5 x 3,600 + 5 x 600	
Ubartutu	18,600	5 x 3,600 + 1 x 600	
Sum	241,200		

[Image: Sumerian list of kings before the flood. After christianityonline.org]

The "turns" of the list for the "kings before the flood" are probably tallies in days, possibly retrocalculated from "years" by the original chronicler. If the first recorded tabulation dates from shortly after 3100 BC, the chronicler would have been aware of the change in the length of the Solar year, and might have sought accuracy by converting the tallies from years to days. Except for the use of whole numbers, the record is also consistent with the Sumerian practice of enumerating lists of products for taxation or trade in the smallest quantities even if these amounts ran into the tens of thousands, suggesting that the "sars" are the smallest unit available, days. Only the sub-totals and totals were calculated in larger units -- in units of 10, 60, 100, 360, 600, and 3600. [\[note 3\]](#)

The whole idea of even suggesting that the year could have changed in the past, comes from the solidly established changes seen in the 8th century BC, when worldwide calendars of 360 days were superseded by calendars of 365 days plus one quarter day. Earlier changes in the calendar are noted from Egyptian sources (during the Hyksos period), and in Exodus, and this would suggest that the orbit of Earth had changed incrementally a number of times. Earlier yet we have the "mythological" records of Yao (in China) and Marduk (in Babylon) who both

established the calendar after 2349 BC. The *Chilam Balam* makes the same claim.

There is only a limited number of days-per-year which can be used to resolve the large whole numbers of the turn counts of the "kings before the flood." These have to represent orbits closer to the Sun than our present orbit of one AU. A 225-day year makes the counts come out even. This is almost exactly the present orbit of Venus -- at 0.72 AU. In Appendix B, "Celestial Mechanics," I will suggest that 0.72 AU is an average for an elliptical orbit of Earth with perihelion at 0.54 AU and aphelion at 0.9 AU.

Lastly, let me again point out that I am using Solar years -- revolutions of Earth around the Sun. Time spans in years of our current value of 365.24 days per year are of no interest, and inappropriate, since we are dealing with much shorter years. The Solar year dates we are dealing with here will actually correspond closely to corrected radio-carbon dates, which are inadvertently adjusted to Solar years with the calibration from tree-ring series (details further below).

Kings Before the Flood from the *King List*

King	City	sars	rule in 'turns'	years 225d/y	intervals of 32
Alorus	Heaven	45	162,000	720 y	
1 Alulim	Eridug	8	28,800	128	4
2 Alaljar	Eridug	10	36,000	160	5
3 Enmenluana	Bad-Tibira	12	43,200	192	6
4 Enmengalana	Bad-Tibira	8	28,800	128	4
5 Dumuzid	Bad-Tibira	10	36,000	160	5
6 Ensipadzidana	Larag	8	28,800	128	4
7 Ermendurana	Zimbir	6+	21,600*	96	3
8 UbaraTutu	Curuppag	5+	18,000*	80	2.5
	on Earth		241,200	1072	33.5
	grand total		403,200	1792	

* - corrected for a transpositional error of 600 (noted by others).

-- L.C. Geerts, [<http://www.earth-history.com>].

The record of the "kings before the flood" seems to reflect relocations in the strike point of the arc in the north Atlantic as the relocations of kingship to different cities. None of the five "cities" listed for the "kings before the flood" have ever been located. Each of the named "cities" looked from afar like a

walled city, although in reality consisting of an immense dome of plasma (or water vapor) rising some thousand miles or more above the Earth. This is also identified as the "world mountain" as far away as China.

China (actually, Mongolia) is only slightly further than Mesopotamia from the actual location of the plasma dome in the North Atlantic. Some Mesopotamian sources identify the walls of the "cities" as a "cloud bank lowered from Heaven." Why *new* kings take up a reign at the same cities is unclear. Just as curious are the extended spans of time which run to over a hundred years, although to take a long time for Mars to slowly recede from Saturn would be expected. That the lowering of Mars was the result of an tilted orbit is unlikely, for in that event Mars would have lowered a thousand times. Even the Vedas do not suggest "a thousand times," but propose that Mars lowered "100 times," where "100 times" likely means "frequently." [\[note 4\]](#)

Interestingly, the 225-day year counts (see the tabulation above) are multiples of 32 years, except the first ("Alorus in Heaven"), and the last (which is 2 1/2 multiples). There are other indications that "32" was of some importance. A count of 32 is still used today in finger counting in Pakistan, and represents two hands worth of knuckle counts. I will get back to this further below.

It should be noted that if we look at the city names and the associated Gods, the list starts to look like an element-by-element description of the Saturnian polar configuration. Eridug is the "good city" -- the cloud bank at the horizon. The remaining names describe the rest of the apparition: the plasma stalk, its tree-like connection at the top, the sun god Utu, the field of grain within the disk. [\[note 5\]](#)

In summary, what I have used from the list of "the kings before the flood" is, first of all, the total period when Saturn stood in the sky -- 1792 years, which spans the era from circa 4939 BC to 3147 BC (this includes the 700-year lifetime of Alorus).

Secondly, I have used the start of the eight kings as the date when Saturn went nova, **3147 + 1072 = 4219**. (Revised to 4077 BC below). Besides for some well-defined changes in climate worldwide, these are the only hints from remote antiquity that we have for these important dates.

However, to this can be added the date of creation based on the death of Adam, as Saturn, in 3147 BC, and who, with a life span of 930 years, would have been born in **4077 BC** (as calculated by Josephus).

Since the eight kings show up in the mythology of other nations (in the case of the Bible with nearly identical proportional span of time), I am assuming that there is validity to the analysis performed here. I should note that in some instances the kings before the flood count as nine. This includes the number of kings given by Berossus, a listing in the *Dynastic Chronicle* of Babylonia. The name for Mars listed in the *Chilam Balam*, "Bolon Dzacab," means "nine appearances," but this may be a name for Mars after 806 BC.

Kings After the Flood

The list of "kings after the flood" is a composite of lists at various cities of Sumer, at times overlapping each other. It starts with the city of Kish, followed by Uruk (Erech). The first complete *King List* was (apparently) compiled during the Isin Dynasty (2017-1794 BC). Some 18 additional fragments and copies have been found at Nippur, Larsa, and other locations.

Copies are at times divergent, but the sum of the reign lengths given at the end of each city always add up to the same number. An exception is the grand total for the first list -- the kings of Kish -- which exceeds any possible combination of reign lengths by some 6500 "years." More on this below.

Literary analysis has shown that both the "kings before the flood" and the last part of the "kings after the flood" were added to other extant lists, and that the presumption of the passage of kingship from one city to another was retained despite a contemporary knowledge in antiquity of the overlap of dynasties.

The reason for looking at the "kings after the flood" is to verify through yet another source that 3147 BC is a valid (or reasonable) terminal date for the "Era of the Gods" and a starting date for subsequent history. Thus if the sum total of reigns of the "kings after the flood" can be fit between 3147 BC and some archaeologically determined dates, then the *King List* could be trusted to represent 3147 BC as a valid starting point. The starting date of 3147 BC is from the "zero date" of the Mesoamerican Long Count calendar, but corrected as noted above. The Mesoamerican records reflect Tun years, which can readily be equated with Solar years. How accurate the Mesoamerican records of the past is, can be gleaned from Book 10 of the Maya *Chilam Balam* books. This correctly dates every catastrophic event of the past to the correct Katun period -- except one -- thus establishing a correspondence to known or derived dates of the Eastern Mediterranean chronology.

Considering that the *Chilam Balam* records were recopied in the 16th century AD from bark books dating back perhaps as far as 2200 years earlier (to 747 BC), it is remarkable how accurate they are and astounding that the Maya had inherited from the Olmecs the world's most accurate and extensive chronology of the remote past. (Any similar records in the Valley of Mexico were destroyed by the Aztecs.)

As a later date to check against the "kings after the flood," I will use Gilgamesh, the fifth king of Uruk, who is confidently dated to 2750 or 2700 BC, even if his actual existence is somewhat in doubt because his doings have been expanded to legendary heroics. It can be shown that the sequence of kings for the cities of Kish and Uruk, if correctly read, spans the time period of approximately 400 years from 3147 BC to 2750 BC.

Similarly, this test can be done in reverse. If the date for Gilgamesh is held to be accurate, does the *King List* extend backwards from the time of Gilgamesh to reach 3147 BC as a starting point? As presented below, the sum of the individual reign lengths actually does not, missing 3147 BC by about 150 years. But there are clear reasons for that. However, the grand total for the first dynasty of Kish, which seems unrelated to the sum of the individual reign lengths, does reach back to 3147 BC. More on this further below.

Another element I am looking to verify is the Egyptian claim that the lifetime of Horus was 300 years (from the Turin Papyrus and some temple records). If Horus (Mars) appeared at 30-year intervals for 300 years, then 10 visits would have been made between 3147 BC and 2850 BC (2770 BC if the 80 years of "negotiations" after 3147 BC are included).

A number of things will strike you in looking at the *King List*. First, the length of reigns at the start of the lists (Kish and early Uruk) are again extravagant -- reigns of 300 to 1500 "years" -- but mixed in are somewhat shorter reigns. Immediately after Gilgamesh (fifth king of Uruk) the reign lengths become reasonable. The later Second Dynasty at Kish again shows a few extravagant numbers.

Second, there is a lot of overlap, even though the lists in all instances read (to us) as if the dynasties at various cities follow each other chronologically. For the later dynasties, archaeological dating has both shown the existence of such overlap and sorted out much of it. An overlap is also true for the listings of the first two cities, Kish and Uruk. A summary for all the cities follows below.

Kings After the Flood by Cities from the *King List*

city	kings	reign yrs	date and notes
----	-----	-----	-----
			3147 BC - starting date
Kish	23	24,510	ends ca 2700 BC (long reigns)
Uruk	12	2,310	Gilgamesh at 2700 BC (some long reigns)
Urim	4	177	
Awan	3	356	
Kish 2	8	3,195	includes some long reigns
Hamazi	1	360	
Uruk 2	3	187	
Urim 2	3	582	
Adab	1	90	
Mari	6	136	
Akcak	6	99	
Kish 3,4	8	212	2365 BC (?) (one 100-yr reign)
Uruk 3	1	25	2335 BC Sargon of Akkad defeats Kish
Akkad	12	197	2193 Fall of Akkad
(dynasties after the fall of Akkad...)			
Uruk 4	5	30	
Gutium	21	95	
Uruk 5	1	27	
Urim 3	5	108	
Isin	14 kings	203 yrs	2004 BC end date
(The last kings of Isin are under Babylonian control)			

The complete list of the "kings after the flood" has held up archaeologically, but the early portion is often thought to be "legendary" by archaeologists, like the list of "kings before the flood." But even for Kish, the 13th, 14th, and 23rd kings have been dated archaeologically. After Gilgamesh of Uruk it is easy to arrive at a second date of certainty, for example, the conquest after 2335 BC of all of Sumer by Sargon of Akkad. All five generations of the Akkadian kings are archaeologically dated with confidence.

The City of Kish

It is difficult to conceive that a collation of records from a dozen locations, dating back over a thousand years, was first attempted as late as 2000 BC. My sense is that the first attempt to extend the records from before 3147 BC was made in Uruk after 2700 BC -- after the "reign" of Gilgamesh. This early attempt to tabulate the historical records of the cities of Kish and Uruk had to account for 400 years.

The record of the kings the first city, Kish in Northern Mesopotamia, is the longest record of reigns of any of the cities, both in the raw information as presented to us, and in terms of "adjusted years" -- which I will detail below. Because of the extremely long reigns, the record for Kish becomes suspect of being a record of celestial beings -- in effect, the ten visits of Mars after 3147 BC -- conformed to actual kings who may have reigned at Kish, or the acceptance of a celestial God as the ruler.

Below is a verbatim rendition of the *King List* for the city of Kish. (See the endnote for mss. sources.) I will follow with more detail and some notes.

Kings of Kish

- *After the flood had swept over, and the kingship had descended from heaven, the kingship was in Kish.*
- *1 In Kish, Jucur became king; he ruled for 1200 years.*
- *2 Kullassina-bel ruled for 960 (ms. P2+L2 has instead: 900) years.*
- *3 Nanjiclicma ruled for (ms. P2+L2 has:) 670 (?) years.*
- *4 En-tarah-ana ruled for (ms. P2+L2 has:) 420 years, 3 months, and 3 1/2 days.*
- *5 Babum ruled for (ms. P2+L2 has:) 300 years.*
- *6 Puannum ruled for 840 (ms. P2+L2 has instead: 240) years.*
- *7 Kalibum ruled for 960 (ms. P2+L2 has instead: 900) years.*
- *8 Kalumum ruled for 840 (mss. P3+BT14, Su1 have instead: 900) years.*
- *9 Zuqaqip ruled for 900 (ms. Su1 has instead: 600) years. (In mss. P2+L2, P3+BT14, P5, the 10th and 11th rulers of the dynasty precede the 8th and 9th.)*
- *10 Atab (mss. P2+L2, P3+BT14, P5 have instead: Aba) ruled for 600 years.*
- *11 Macda, the son of Atab, ruled for 840 (ms. Su1 has instead: 720) years.*
- *12 Arwium, the son of Macda, ruled for 720 years.*
- *13 Etana, the shepherd, who ascended to heaven and consolidated all the foreign countries, became king; he ruled for 1500 (ms. P2+L2 has instead: 635) years.*
- *14 Balih, the son of Etana, ruled for 400 (mss. P2+L2, Su1 have instead: 410) years.*
- *15 En-me-nuna ruled for 660 (ms. P2+L2 has instead: 621) years.*
- *16 Melem-Kish, the son of En-me-nuna, ruled for 900 years. (ms. P3+BT14 adds:) 1560 are the years of the dynasty of En-me-nuna.*
- *17 Barsal-nuna, the son of En-me-nuna, (mss. P5, P3+BT14 have instead: Barsal-nuna) ruled for 1200 years.*

- 18 Zamug, the son of Barsal-nuna, ruled for 140 years.
- 19 Tizqar, the son of Zamug, ruled for 305 years. (ms. P3+BT14 adds:) 1620 + X
- 20 Ilku ruled for 900 years.
- 21 Iltasadum ruled for 1200 years.
- 22 En-men-barage-si, who made the land of Elam submit, became king; he ruled for 900 years.
- 23 Aga, the son of En-men-barage-si, ruled for 625 years. (ms. P3+BT14 adds:) 1525 are the years of the dynasty of En-men-barage-si.
- 23 kings; they ruled for 24510 years, 3 months, and 3 1/2 days.
- Then Kish was defeated and the kingship was taken to E-ana.

[\[note 6\]](#)

E-ana, where kingship is taken at the end of this dynasty, is the temple of An at (or near) Uruk. As you can read above, the 23 kings rule for 24,510 years, 3 months, and 3 1/2 days. This total would have been inscribed, in typical Sumerian accounting practice, on the back side of the tablet.

But the reign lengths *do not* add up to 24,510 years. Something is wrong with the list, even though this version is a standard and a reliable translation. All the variant versions claim 24,510 as a grand total. As shown above, the total comes to 17,980 years. Some 6,500 years would have to be added to make up the difference, and this cannot be done by any stretch of the imagination. I will propose a number of causes for the discrepancy, and a solution.

It has been suggested by others that the reigns for Kish do not add up because there are some numbers missing and there were copying errors. In fact, many of the tablets have some damage and also show divergent reign lengths. The reason the grand total remains the same is from the practice used with the accounting tablets since long before 2000 BC which show tallies and subtotals on one face and the grand total on the reverse. Thus the scribes who copied one tablet to another did so without ever checking if the numbers added up. It seems archaeologists also never checked.

All the lists of "kings after the flood" differ from the list of "kings before the flood." The "saros" is never used again, nor the literary style used to describe each city. But the lists for the first dynasties of Kish and Uruk also differ from any of the following lists, not only because of the long reign lengths, but also because these two list include short descriptive phrases for a number of kings, something not found anywhere else, with one exception (Kish, Dynasty 3) and the obvious editorial comments after the fall of the Akkadian empire, which reads, *"after the Gutium Hordes seized kingship, everyone was his own king for*

3 years." The descriptive phrases of the first two lists read very similar to those found among the genealogies of the book of Genesis, and include the following:

- Kish: *"Etana, the shepherd who ascended to Heaven and made firm all the lands."* (the ascension was "on the wings of an eagle," reminiscent of winged Mercury, which show up at the same time as Mars)
- Kish: *"Enmebaraggesi, the king who smote the Land of Elam."*
- Uruk: *"Meskiaggasher, the son of the Sun God, Utu (Shamash), ruled as both lord and king for 324 years during which time he entered the sea and climbed the mountains;"*
- Uruk: *"Enmerkar, the son of Meskiaggasher, the king of Uruk who had founded Uruk."*
- Uruk: *"Dumuzi, the fisherman who came from the city of Kuara."*
- and the note for Gilgamesh: *"Gilgamesh, whose father was a spirit."*

This is a mix of attributes which can be assigned to outstanding human kings and feats only to be accomplished by a God. This makes it look as if attributes of the visiting Mars were assigned to various actual kings. [\[note 7\]](#)

The note about Meskiaggasher (2740 BC at Uruk), who *"entered the sea and climbed the mountains,"* is interesting. This could be taken (as archaeologists have suggested), as the expansion of the trade of Sumer by Uruk at a location better served for contact via the Persian Gulf than northern Kish was -- ascending the Zagros mountains to reach the Iranian plateau, and entering the Gulf to reach Pakistan and the Arabian peninsula, as well as East Africa (all of which was actually done). But it can also be understood as Horus climbing his mountain, followed by a disappearance into the sea of the south skies, the Absu.

Additionally, the various symbols used for large numeric quantities had not stabilized during the early Sumerian period, despite the fact that the tallies of tokens had been in use for nearly 5000 years in Northern Mesopotamia. It is possible that the scribes of Uruk who first inspected the stolen temple records of Kish just misread the data. Once this happened, the erroneous data just carried forward, for if nothing else, the records we have show that very little editing was done. A case in point is the reign of En-tarah-ana, the 4th king of Kish, who "ruled for 420 years, 3 months, and 3 1/2 days." Despite the fact that the 3 months and 3 1/2 days could have been dropped long ago, it was carried forward for a thousand years, and always included in the grand total. There were no months at this time, in that there was no Moon as yet. [\[note 8\]](#)

Lastly, our Indo-European concepts of sequential time will have us completely misread the intentions of the scribes of early Sumer by making assumptions about relationships from the texts which were never intended. The obvious example is that the lists are assumed to be consecutive by us. This has proven to be completely false; the scribes had no such intention. When a list reads, "and then kingship transferred to so-and-so city," it could happen any time in the chronology of the so-and-so city. For example, at the end of the First Dynasty of Kish, kingship is transferred to Uruk, but it is after the time of the fifth king of Uruk, not at the time of the first king of Uruk. The later scribes of Sumer were aware of these discontinuities also, but the practice of assigning kingship to various cities on a rotating basis, which had started with Kish and Uruk, was continued as a "method" into the future.

Even within the list for any city it would be *our expectation* to find the reigns closely consecutive, that is, without gaps of time where there is no king, and without periods where two kings might rule simultaneously. But this might not have been the case, and ought to be allowed for as a possibility. It has also been noted by others that some "reigns" might represent the length of life of a king rather than the years spent on the throne. These two "solutions" have already been adopted by archaeologists.

But none of the caveats and conditions listed above properly explains the discrepant long reigns of Kish and Uruk, or the mismatched grand total for Kish. A misreading of ciphers has to be kept in mind, though, and a complete misreading of the first records of Kish by the scribes of Uruk comes closest to a rescue of the situation. This also applies to the early record of Uruk.

Finding and applying a corrective factor to the discrepant reign lengths which makes all of the lists coherent is perhaps easier than finding the cause of the misreadings. What I propose is that the early records either overstate or were misread by a factor of 60. [\[note 9\]](#)

Dividing all the listed reigns by 60 yields reasonable year lengths, reasonable, that is, for celestial phenomena. It brings the whole series to the time of Gilgamesh, although we still end up with spans of 15 to 20 years, which are generally too long as the reign lengths for normal human kings. Thus I suspect that the list of kings for Kish concerns itself with celestial beings, perhaps along with real people. More on this below.

In the listing below, I have reduced all the reign lengths of the kings of Kish from the extravagant periods of "900 years" or more to something more realistic

by dividing all the entries by 60. (The first kings of Uruk are listed further below.)

The summary below uses a starting date of 3067 BC. This is 80 years after the end of the "Era of the Gods" in 3147 BC, and represents the period of time that it took the Gods of Egypt to negotiate who among them would rule Egypt. The 80 years is mentioned in very late Egyptian sources. The rulership of Egypt was (after 80 years) assigned to Horus/Mars. I will suggest that the first kings of Mesopotamia and the first kings of Egypt were celestial beings, not humans.

Kings of Kish After the Flood

tallies in '60s' adds up correctly

notes () are listed below

Name	Length	/60	end year	notes
-----	-----	---	-----	-----
			3067	starting date
1 Jucur	1,200	20	3047	
2 Kullassina-bel	960	16	3031	
3 Nanjiclicma	670	11.1	3020	rounded
4 En-tarah-ana	420	7	3013	(plus 3 mo, 3.5 d)
5 Babum	300	5	3008	
6 Puannum	840	14	2994	
7 Kalibum	960	16	2978	
8 Kalumum	840	14	2964	
9 Zuqaqip	900	15	2949	
10 Atab	600	10	2939	
11 Macda	840	14	2925	
12 Arwium	720	12	2913	
13 Etana	1,500	25	2888	ca 2800 BC
14 Balih	400	6.7	2881	rounded (1)
15 En-me-nuna	660	11	2870	
16 Melem-Kic	900	15	2855	
17 Barsal-nuna	1,200	20	2835	(2)
18 Zamug	140	2.3	2833	rounded
19 Tizqar	305	5.1	2828	rounded
20 Ilku	900	15	2813	
21 Iltasadum	1,200	20	2793	
22 En-men-barage-si	900	15	2778	(3) ca 2750 BC
23 Aga	625	10.4	2768	rounded (4)
Total: 23 kings	17,980	299.6	total of reign entries	
23 kings;	24,510	408.5	original document total	

Notes:

Note (1): coincidence of Kish 14 and Uruk 1.

Note (2): coincidence of Kish 17 and Uruk 3 (?)

Note (3): coincident reign with Uruk's Lugabanda.

Note (4): meets Gilgamesh, ca 2700 (literary source)

The difference between a starting date of 3147 BC and 3067 BC is justified as follows:

The orbit of Mars is too large for Mars to have been released from Saturn at the same location from the Sun that Earth and Venus were. We could assume that Mars remained entwined with Saturn until the asteroid belt was reached, some 50 to 60 million miles (80 to 100 million km) beyond Earth's orbit. Certain descriptive details in the records of Egypt, which are associated with the earliest records of Horus, would demand as much. We could assume that Mars did not come close to Earth until 3067 BC -- 80 years after 3147 BC.

Mars (Horus) was involved in the 80 years of "negotiation" among the Gods before showing up (in Egypt) to claim rulership of the land. (The story dates from the 12th dynasty circa 1500 BC and is recorded circa 700 BC in the *Chester Beatty Papyrus*, now at Dublin.) In 3067 BC Mars must have gone into an elliptical orbit around the Sun with an aphelion near (or within) the asteroid belt, and a perihelion inside the orbit of Earth. Additionally it seems likely that Mars passed (infrequently) very close Earth. We do not know this exactly, but it can be surmised from the list of the kings of Kish, the first two pharaonic dynasties of Egypt, and even the current orbit of Mars, which still closes in on Earth every 30 years.

It seems quite possible that the close approaches between Mars and Earth would only last for short periods of time -- days -- over a period of 300 years (so claim the Egyptians) and at 15 year intervals. The orbit of Mars might change with each near contact with Earth, although likely to be corrected with the next close pass. Earth, with 10 times the mass of Mars, would not be significantly affected.

It is possible that the Sed festival of the Egyptian pharaohs was established on the basis of these infrequent incidents, when Mars would have formed a mountain form with the ionosphere of Earth -- what would have looked like a solid pyramidal form -- before the return and overpassings of Mars began to be measured differently.

The advantage of starting in 3067 BC rather than 3147 BC is that the 300-year record of the kings of Kish now ends correctly at the time of Gilgamesh, who is dated at about 2700 or 2750 BC. Aga, the last king of Kish, is confronted by Gilgamesh, and is captured by Gilgamesh. The Sumerian legend *Gilgamesh and*

Aga recounts this, although the information of the capture (and release) of *Aga* seems to have been appended as an afterthought. The main theme of *Gilgamesh and Aga* is how Gilgamesh stood up against the demands of the city of Kish, an event which forever changed the politics of Sumer. How important the primacy of Kish had been is shown by the titles taken by many later kings of other Sumerian and Akkadian cities, as "King of Kish and so-and-so."

Ending a 300-year period at about 2750 BC makes a better fit also to the end of the Egyptian list of Horus pharaohs (the first two dynasties), and the start of pyramid building worldwide. Additionally, the 300-year period equals the life span of Horus, listed as 300 years in the Turin Papyrus, and other records. Other literary sources suggest that the Sed festival was celebrated at 30-year intervals (there is also at least one mention of 20 years). I think that the Sed festival might have celebrated the visitations of Horus, but it is also possible that the Sed festival dates from the time of the southern ball plasmoid and the overhead lines of electrons in the sky, and represents a symbolic survey of the land.

But what is the meaning of the grand total of 24,510 years (408.5 real years) for the kings of Kish, when the total of the reigns add up to only 17,980 years (299.6 real years)? I think the "24,510 years" represents the interval between the date when the "flood swept over," which is the opening statement of the tally, and the date of the end of the listing of the kings of Kish. It thus represents a span of 408 years ending in about 2750 BC, but only during the last 300 years were there any kings assigned to Kish, ending circa 2768 BC.

The scribes were correct; it was only we who had understood the "24,510 years" as the mathematical total of the individual reign lengths. The last line of the tablets, which reads "23 kings ruled for 24,510 years" should really read "23 kings ruled *during* 24,510 years" to conform to *our* notions of the passage of time.

There is one more problem to be resolved. If at this point we were to look for celestial kings in the list of kings of Kish -- visits by Mars/Horus -- the first suggestion would be to assign them to the anomalously long reigns, of which five are on the order of 1200 and 1560 "years" in the original texts (equal to 20 "adjusted" years), and another 15 instances at 10 to 16 "adjusted" years. There are altogether some 20 of these "long" reigns. This differs from what has been assumed from later Egyptian sources, which claims ten visitations at 30-year intervals (although there are also some 17 to 19 pharaohs in the first two Egyptian dynasties between 3050 BC and 2700 BC).

In fact, what I think we are looking at is the records of the close approaches of *two* planets -- Mars and Mercury. It is certain that Mercury was seen in the skies from very early times (but not in its present position close to the Sun) for the Turin Papyrus lists Thoth (Mercury) with a life span of 3126 years, the longest life span by far of any of the Gods. What we are looking at, therefore, is a set of two repeating appearances, Mars on a 30-year cycle and Mercury on an equal or similar cycle. [\[note 10\]](#)

That is one possibility. Another is the fact that Mars would cross over the Earth on its way toward perihelion behind the Sun, and would return on a similar schedule, that is, it would cross over again in the opposite direction at a later date in moving from near the Sun to the far reaches of space. What suggests this process is the much later movements of Mars between 806 BC and 687 BC, which was on a 14- or 15-year interval, alternating between approaching the Sun and movement away from the Sun. (Mars would, of course, orbit the Sun on an approximate two-year cycle, but only at 14- or 15-year intervals would the Mars orbit coincide with the location of Earth on its path.)

This particular solution also solves the problem that there is no mythology of Mercury at this early time.

In either case we would need to recognize repeating cycles by combining the kings into groups of two (or more) -- one accounting for a crossing of Mars, followed some years later by a crossing of Mercury (or the return crossing by Mars). If this is done, the list above reduces to a series of 10 time spans, as follows:

36, 23+, 30, 29, 24, 37, 33-, 27+, 35, 24+

But this can also be arranged as follows:

36, 37, 30, 25, 26, 32-, 26, 27, 35, 24+

Obviously other combinations can be found. The above data is shown in the table below, along with another group of 11. What this grouping by two's does is to swallow the visits of one of the planets or the reign of one of the assigned kings.

Table of the First Dynasty of Kish

	Name	Length	/60	possible groupings		
				(10)	(10)	(11)
	-----	-----	---	-----	-----	-----
1	Jucur	1,200	20			20
2	Kullassina-bel	960	16	36	36	
3	Nanjiclicma	670	11.1			27
4	En-tarah-ana	420	7			
5	Babum	300	5	23.1		
6	Puannum	840	14		37	26
7	Kalibum	960	16	30		
8	Kalumum	840	14		30	30
9	Zuqaqip	900	15	29		
10	Atab	600	10		25	25
11	Macda	840	14	24		
12	Arwium	720	12		26	26
13	Etana	1,500	25	37		
14	Balih	400	6.7		31.7	31.7
15	En-me-nuna	660	11			
16	Melem-Kic	900	15	32.7	26	26
17	Barsal-nuna	1,200	20			
18	Zamug	140	2.3			
19	Tizqar	305	5.1	27.4	27.4	27.4
20	Ilku	900	15			
21	Iltasadum	1,200	20	35	35	35
22	En-men-barage-si	900	15			
23	Aga	625	10.4	25.4	25.4	25.4
Total: 23 kings		17,980	299.6	(10)	(10)	(11)

For an alternate list (the alternative dates shown in the verbose transcription above), I get a series of 10 time spans as follows: [\[note 11\]](#)

35, 27+, 30, 32, 29+, 25+, 22+, 27, 35, 25+

As shown above, there are not 10 visits at 30-year intervals as guessed from Egyptian sources, but 10 visits at various spans of time between 35 and 25 years apart. They average to 29.8 years, or to 30.4 if the last value of 25.4 is removed.

The orbit of Mars would be constantly adjusted by the periodic near contacts with Earth, although the two intervals making up the combined span of time of approximately 30 years is very regular throughout much of the list. We are not looking at synodic periods which might have been noticed. Synodic periods are small in comparison to the 34- to 20-year intervals. We are looking at the close approaches or overpasses of two planets. [\[note 12\]](#)

I should again point out that the 30- or 20-year intervals do not represent the orbital period of either Mars or Mercury. These remain at around two years for

Mars and probably the same for Mercury. Only at the long intervals listed above would they cross the Earth's orbit near the location of Earth.

The planet God Saturn had ruled humanity for a thousand years. Then after 3147 BC came a period of uncertainty. But after 3067 BC Mars showed up again and was welcomed as the God and ruler. The repeated returns constituted the "kings" of Kish. The pharaohs of the first and second dynasty of Egypt form a parallel record.

It is quite possible that we should not be looking for 30-year intervals, but for 32-year intervals. As I mentioned above, all the reigns of the "kings before the flood" are multiples of 32.

In Western Europe there are a number of early megalithic grave sites with 32 or 34 distinct markers. The numbers 32 and 34 appear all too frequently as markers among the megalithic grave barrows to be mere coincidence. Even the Malta Hypogeum has 34 chambers.

The "34" likely represents a counting system which counted the intervals which included the endpoints of a time span which we would identify as an interval, and is seen in use elsewhere in antiquity, as late as Imperial Roman times. The Roman day-of-the-month count was numbered in such an absurd system. This is not an uncommon antique counting system. [\[note 13\]](#)

The only other countable elements of the megalithic chambers are the serpentine twinings used as decorations. But these make no sense. They appear in groups of 4, 6, 7, 8, 12, 13, 29, and 30. Some people would equate the groups of 29 and 30 with the orbit of the Moon. But there was no Moon.

There are 34 standing stones at a number of barrow locations in Ireland. Perhaps these people were counting 32-year intervals between times when the God would come to gather the dead, but counting the first and the last year twice for every interval. I would suggest that the various sets of 34 stones represent a span of 32 years, where the very beginning and the completion of an interval are also counted. But inclusive counting adds up to 33, not 34, if the markers are counted. However, the interstitial spaces between 34 markers yields the number 33, which is an "inclusive" count of 32. [\[note 14\]](#)

The later New Grange barrow does better. Of the 96 curb stones at the base, 32 are decorated -- incised with whorls -- the last, a very large decorated stone, lies in front of the entrance. New Grange was certainly built after 3147 BC, and thus

may have been designed around possible 32-year inclusive intervals between visits by Mars after 3067 BC.

If Mars actually showed up near Earth at regular 32-year inclusive intervals, then there might have been a need for the early chroniclers of the *King List* to make sure that the visits of Mars prior to the flood were also recorded in 32-year intervals. That, to me, seems the only resolution of the multiples of 32 years used for reign lengths of the "kings before the flood." That also reduces the confidence that the reign lengths are exact tallies of the time intervals.

Mars/Horus fails to show up after circa 2750 BC. Perhaps some undetermined celestial event terminated the visits of Mars, although it is more likely that the second nodal points of the elliptical orbits of Earth and Mars had revolved away from each other.

The City of Uruk

The midpoint of the career of Gilgamesh is estimated at 2700 BC, Carbon-14 dated from the reconstruction of the walls of Uruk, attributed to him in legend. Following Gilgamesh the reign lengths become reasonable, and it looks like actual Solar years were used. In the tabulation below I have used actual years (as reported in the record) from Gilgamesh on.

Table of the First Dynasty of Uruk

	Name	Length	/60	end year	notes	archaeological
	-----	-----	---	-----	-----	-----
1	Mec-ki-aj-gacir	324	5.4		(1)	2740 BC ?
2	Enmerkar	420	7		(2)	2750 BC ?
3	Lugalbanda	1,200	20		(3)	
4	Dumuzid	100	1.6		(4)	
5	Gilgamesh	126	126*	2650	(5)	ca 2700 BC
6	Ur-lungal	30	30*	2620		
7	Udul-kalama	15	15*	2605		
8	La-ba'cum	9	9*	2596		
9	En-nun-tarah-ana	8	8*	2588		
10	Mec-he (the smith)	36	36*	2552		
11	Melem-anna	6	6*	2546		
12	Lugal-kitun	36	36*	2510		ca 2550 BC
			* -- actual years used			
:::::	totals (Uruk)	2,310	300 years			

Notes:

Note (1): coincidence of Kish 14 and Uruk 1, dated 2720 or 2740 BC.

Note (2): literary ~2750.

Note (3): coincidence of Kish 17 and Uruk 3 (?), father of Gilgamesh.

Note (4): Dumuzid captures second to last king of Kish, 22.

Note (5): Gilgamesh (in one of the Gilgamesh sagas) meets the
last king of Kish, Aga.

The end-years listed above are based on assuming the year 2700 BC represents the midpoint of the career of Gilgamesh. This has been Carbon-14 dated. Allowing 50 years before and after 2700 BC, Gilgamesh would have lived between 2750 and 2650 BC. The end-year for Aga of the city of Kish, 2768 BC, falls at the beginning of the interval which we can assign to Gilgamesh.

I have kept Gilgamesh's reign at 126 years even though this is not at all justified. Gilgamesh is probably the planet Mars. Dividing by 60 reduces his reign to 2 years. The fact is, I suspect that Gilgamesh is both Mars and a human.

From internal considerations, it would seem that the initial *King List* was probably first compiled after the time of Gilgamesh. A predecessor (Meskiaggasher, first king of Uruk) was listed as "the first to write on tablets" -- probably true for Southern Mesopotamia. It is to Meskiaggasher also that an expansion of trade was attributed. After Gilgamesh there is a sudden change in listing the reign lengths. Gilgamesh, located at the very end of the series of visits by Mars, becomes the Hercules of Sumer in the epics which follow.

From the last king of the first dynasty of Uruk, archaeologically dated to about 2550 BC (and as 2547 to 2510 BC in the listing above), there is a clear archaeological path of dates leading to the Akkadian empire of 2335 BC, and onward to dates for the rule of Isin in 2207 BC.

Parallel Histories

The purpose of the following section is to list the parallel mythologies (histories) of different people -- as a supplement to the analysis of the *King List* above. The purpose thus is to highlight the following:

- A record of eight lowerings of Mars before 3147 BC, that is, before the end of the "Era of the Gods," recognized as kings or godly rulers.
- A terminal date for the "Era of the Gods" when the polar configuration came apart. Details would include mention of the massive world flood of

3147 BC.

- A continuation of the chronology from this point in a record of the ten overflights of Mars after about 3067 BC and ending by about 2700 BC, and a transition at that time to a more solidly founded archaeological and chronological record.

Lastly, and although not forthcoming from all sources, a record of the apparition which stood above the north horizon for perhaps a thousand years. This would involve changes in how this looked, going from a shrouded sphere to a fireball, the stream of plasma in arc mode, followed by a continued plasma stream in glow mode. Details would include Venus connected to Saturn with a swirl of plasma. Some of these details have been noted in the text pages already, but I have here added a few other sources.

Maya Parallels

Although the Maya disappear archaeologically before about 1500 BC, as do the Olmecs by 2000 BC, parallels are recorded in the books of the *Chilam Balam* of the 16th century AD. There were apparently copied from bark book codexes which are now lost to us. These records clearly date back to the end of the "Era of the Gods" and earlier. They were recopied to a European script by the Maya in the 16th century AD. The oldest historical records are found in Book 10 (and Book 11) of the Maya *Chilam Balam*.

The reference to the eight "kings before the flood" is the description of the ascension of Nine-Lives (Bolon Dzacab). He is known as Nine-Lives, I would suspect, because he ascends nine times and was seen closer to Saturn than Earth nine times. Mesoamerican languages emphasize the completion of actions rather than the start. (The action was to leave behind a mountain of maize mash.) Similarly, Nine-Lives is only mentioned once since repetitions of the activity are not needed in a book of prophecies. Nine-Lives is known to be Mars. He is called "this first Bolon Dzacab," very similar to Egyptian naming of the early Horus as "Horus of the Gods." [\[note 15\]](#)

During the following period of Katun 9-Ahau (3087 to 3067 BC), "Ten-Sky" first appears, which are the close calls of Mars initiated after 3067 BC. Again, the repetitions are not noted. The name "Ten-Sky" is sufficient to indicate this. The same is done later for two series of repeating close calls by Venus. Because only the Katun name is given, we do not know the actual date of the first appearance, only a 20-year range, but as guessed at above. Since all dates in the *Chilam*

Balam books, except one (which was altered in antiquity), can be brought into concordance with estimated dates from Eastern Mediterranean sources, we can have considerable confidence in guessing the larger 400-year "Baktun" period, and the equivalent Gregorian dates.

Biblical Parallels

The editors of the Old Testament recopied old books, collated manuscripts, and reviewed the *King List* some 2400 years ago. As the oldest extant historical document, the *King List* could not be neglected, although as likely many Bible sources were Egyptian. The editors were also 1500 years closer to the Sumerian sources of 2000 BC than we are today, and not only took the information seriously, but most likely read the Sumerian texts correctly, for there is close agreement on the time spans between the Bible and the *King List*, -- not the "unmodified" long reign spans, but as modified by me above.

There have been attempts by Bible scholars to justify the time spans in years of the Sumerian "kings before the flood" with the Bible account of the time span from creation to the flood of Noah, and especially to somehow account for the long lives of the patriarchs. In both texts eight kings or patriarchs are listed -- nine patriarchs if Adam is included.

There is a relationship between the *King List* and the Bible, but it is hardly as simple as assuming that the Sumerian account just multiplied the account of the book of Genesis by some large number, as some have suggested. [\[note 16\]](#)

Note that according to the Bible Adam lived 930 years. We can assume that Saturn was understood as representing Adam, who "died" in 3147 BC. Subtracting Adam's life span from 3147 BC, brings us to 4077 BC -- close to my original estimate of 4100 BC as the date when Saturn went nova, and lit up like a sun -- the creation. Close, also, to Bishop Ussher's estimate of 4004 BC as the start of creation.

There can also be little doubt that the Bible mistook the flood of Noah, 2349 BC, for the world flood of 3147 BC. Adding the span of 1680 derived from the Bible as the number of years between creation and "the flood" brings us to 2397 BC. The calculation is $3147 + 930 - 1680 = 2397 \text{ BC}$ -- close enough to 2349 BC (my date). Ussher, using births and life spans from the Bible, calculates 1656 years. Josephus knew the span between creation and the flood as 1656 years, and might have subtracted 1656 from 3147 BC (my date for creation) to arrive at 1491 BC

(as the "flood of Noah") but without identifying these years in our BC/AD calendar.

In fact, the flood of 3147 BC seems to have been neglected entirely. If we count Adam as representing Saturn, and remove Enoch as having far too short of a life, then there are 8 names left over, including Noah. And thus here, woven into this chronology, are the eight lowerings of Mars, who came to represent all the "patriarchs before the flood." And some ten appearances after 3147 BC. [\[note 17\]](#)

The time from 3147 BC to Gilgamesh can similarly be compared to the narrative of the Bible. The period from the biblical flood (2349 BC) to the midpoint of Abraham's life is nearly equal to the time between the Mesopotamian flood of 3147 BC and the midpoint of Gilgamesh's reign (approximately 408 years). Both Gilgamesh and Abraham were heroes to their people, and "mythologically" located at the midpoints of two analogical world histories. Both may represent the last apparition of Mars and embody all the previous appearances, as Hercules does for the Greeks at a later date. I am here using Ussher's date of 2348 BC for the end of the Bible flood and 1921 BC for Abraham's arrival in Canaan as a midpoint (thus 427 years). That means, again, that the list for the kings of Kish was read correctly in 600 BC. [\[note 18\]](#)

Additionally, just as the list of the kings of Kish list 10 kings (although in groups of two) between the flood of 3147 and the time of Gilgamesh and Egypt claims ten visits of Horus, so the Bible lists 10 patriarchs between the "flood of 2349 BC" and Abraham. Abraham is the 10th generation born after Noah (I am counting Shem, son of Noah, actually born before the flood). All except the first and last of these 10 generations were sired when their father was 29, 30, 32, or 35 years old. After Abraham, as with Gilgamesh, the life spans become normal.

I do think that the Bible may have used the *King List* as a source. But what we are seeing is a record in parallel to the Sumerian sources, or Egyptian sources (since by tradition Moses was the original author of Genesis).

What I think we are seeing, as I have expressed earlier, are complete fictions, based on slim recollections, other peoples' stories, and a need for narrative continuity. Abraham, if equated to Jupiter, would have a first appearance as a giant figure in the sky two and a half days after the fall of the Absu (on the calendar date of September 6) in 2349 BC. If he then lives until 2150 BC (a most likely date for his demise) he would have lived 199 years. This is the year

that I had earlier selected as the year that Jupiter blazed in flames and disappeared from view (died) to be seen afterwards only as a star.

The Bible, however, claims Abraham lived 175 years, and also places his whole life at a completely different time period. The difference between 199 years and 175 years is considerable. We should accept either the year of Abraham's first appearance (2349 BC) or the year of his end (2150 BC) as certain. It is possible that 2150 BC is not as hard and fast as I may have suggested. However, the Maya *Chilam Balam* comes to the same conclusion for the event, placing it in a Katun which includes 2150 BC. The demise of Jupiter happened in a Katun 8-Ahau (2.10.0.0.0) which is a 20-year period nominally ending in 2128 BC, but should be corrected to 2167 to 2147 BC. This includes 2150 BC.

The other correction by 25 years would be to suggest a "birth" for Abraham in 2325 BC, some 25 years after the "flood of Noah." The only celestial event that can be tagged to this date, or some date close to it, would be the regularization of the Moon. I have previously suggested that I cannot with any certainty place the year when the Moon started to orbit Earth, except to say that it probably was shortly after 2349 BC, after the Earth had moved to a larger orbit. A best suggestion for a date comes from the Chinese Annals of Shu, which assigns the birth of Shun (the Moon) to 2318 BC. The dates derived from the Annals of Shu may not be entirely correct, but the date is closer to 2325 BC.

So, now what? I would suggest that the "birth of the Moon" was mistaken or misread for the birth of Abraham. There is some elegance to this solution: this disconnects Abraham from the "flood" and it disconnects him from being a God who appears fully formed in the sky suddenly. It is obvious that the 6th century BC Bible editors confused the "flood of 2349 BC" with the flood of 3147 BC (as many people did), and had to place the birth of Abraham (additionally) 400 years later to have his life follow the offspring of Noah. Typical of the Bible, as with many other sources of antiquity, is that spans of time are often accurate, even when there seldom are any starting or terminal dates. So the 175 years for the lifespan of Abraham remains as correct, even if the dates of his birth and death are altogether uncertain.

Egyptian Parallels

Egyptian parallels can be found from three sources for the kings of the first and second dynasties: (1) the Palermo stone list of kings (about 2550 BC), (2) the Turin Papyrus list of kings (circa 1200 BC, or more likely 950 BC), and (3) the

written records of kings left by Manetho (about 300 to 200 BC). These last, although spanning 2200 years, are congruent for all practical purposes, and mostly validate each other. I will discuss the predynastic archaeological record separately further below.

The First Pharaohs

The pharaohs from the First through the Second Dynasty use "Horus names." There is one exception in the middle of this list, a pharaoh who takes a "Seth name." After this one use, no pharaoh ever takes a Seth name again (excepting once more in the 19th Dynasty after 1300 BC). The second dynasty ends in 2705. It is the first and second dynasty which ought to be compared to the list of "kings after the flood" and the Bible patriarchs.

The dynasty groupings may have been selected by Manetho, perhaps arbitrarily, although these could represent family groups, or represent blocks of a unified political or religious climate. It has also been suggested that some dynasties may have been grouped by the location (city) which held political power for a length of time. Thus the separation of the early kings in Egypt into the first, second, and third dynasty may not mean anything.

The break between Dynasty 1 and Dynasty 2 is equivalent to the division at Kish between kings with "animal names" and the group of 10 kings starting with Etana. But Dynasty 1 ends in 2857 BC, and Etana is placed (by me) in 2913 to 2888 BC. I have also noted that the end of the first dynasty coincides with the disappearance of Jupiter into the asteroid belt in circa 2860 BC (as calculated by me). [\[note 19\]](#)

The second dynasty ends in 2705 -- coinciding with what I have assumed to be the last apparition of Horus. The use of pyramids as grave markers starts with the following third dynasty of Egypt after 2650 BC -- 50 or 100 years after Mars/Horus is no longer seen in the skies close to Earth. The first ziggurat (the E-ana at Uruk) appears in Mesopotamia at the same date. The construction of pyramids starts in the Andes at the same time (circa 2650 BC), and the effort at constructing a giant conical mountain happens in England around 2500 BC. Again, I have to invoke van der Sluijs's comment that the Gods (and their activities and symbols) are localized after they are no longer present in the skies. [\[note 20\]](#)

The graves of the Horus pharaohs at Abydos (Central to Upper Egypt) are apparently cenotaphs, with the alternate (real) burials at Saqqara (or, as currently understood, the reverse of this). Abydos is also the city of Osiris, and his "grave" had become a site of pilgrimages in antiquity. If then the graves at Abydos start with the grave of Osiris, followed by a dozen graves of Horus, it might be suggested that the Egyptians *pro forma* provided graves for the deity which the pharaoh represented. The alternate (and accepted) explanation is that the cenotaphs were politically significant -- in representing separate graves as "King of Lower Egypt" and as "King of Upper Egypt," although this is a modern political interpretation. There were no separate kings of upper and Lower Egypt. It is all too obvious that we should seek explanations in ancient religious motivations, not in modern philosophies.

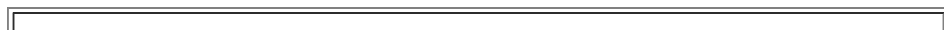
There are, as there are in Mesopotamia, some 20 pharaohs, but possibly 17. The reign lengths for most are far too long as earthly kings, and the series also does not follow the obvious progression of a series of 30-year intervals. The reign lengths of the first and second dynasty pharaohs depend mostly on archaeological findings and archaeological dating, and are not as concrete as the Mesopotamian written record. The Turin papyrus gives dates which are much too long, and the Palermo stone is very incomplete.

Chinese Parallels

There are ten "Legendary Emperors of China" as listed by Joseph Campbell, but only eight in number from Taoist sources, a set of three nobles, followed by a set of five "Tis" (Tîs) -- a word clearly meaning "Gods" but usually translated as "Emperors." Considering that the dates assigned to these eight or ten "Legendary Emperors" falls after 3147 BC, at first glance it looks similar to the Mesopotamian list of the "kings after the flood."

"Prior to the dynasty of Hsiâ [Xia], with the exception of the period of Yao and Shun, the accounts which we have of the history of China have been, and ought to be, pronounced "fabulous" and "legendary." The oldest documents that purport to be historical are the books in the Shu; about Yao and Shun, and even they do not profess to be contemporaneous with those personages."

-- James Legge, introduction to *The Sacred Books of the East, The Shu King* (volume 3) (1879).



Legendary Emperors of China

Ruler	Reign Length	years	notes
Period of the three nobles "San-huang"			
1 Fu Shi	115 years	2953-2838 BC	
2 Shen Nung	120 years	2838-2718 BC	or 17 generations
3 Yen Ti	21 years	2718-2598 BC	
Period of the 5 emperors "Wu Ti"			
1 Huang Ti	100 years	2698-2598 BC	"Yellow Emperor"
2 Shao Hao	84 years	2598-2514 BC	Kin-Tien
3 Chuan Hsi	78 years	2514-2436 BC	Kao-Yang
? Ti Kao	70 years	2436-2366 BC	(K'u? -- Gu)
4 Yao	102 years	2357-2255 BC	
5 Shun	50 years	2255-2205 BC	
Yu		2205-2197 BC	Xia first king

Fu Shi, wrote Campbell, is equated with Adam. Even so, following him, Shen Nung, who must represent the egg in the sky, lived 17 generations (from some sources), thus about 820 years, not far from my estimate of 720 Solar years. However, all the listed dates are in complete disorder. It is more likely that the three nobles represent the three ball plasmoids in the south, and the three periods in the remote past that these were seen.

Huang Ti, the "Yellow Emperor," has long been identified as Saturn. The lifetime of Huang Ti is only listed as 100 years, even though he brought all the gifts of civilization to China. Other information lists his reign as 300 years (Confucius).

"He consulted with his sages while deliberating on the "Bright Terrace;" ... he assembled the spirits on the holy mount T'ai-shan."

-- <http://www.world-destiny.org/>

The Taoist groupings reflect philosophical concerns. There are five Legendary Emperors to match the five elements. But later Taoist writings also define eight "immortals" as exemplary figures of the past. Legge notes that:

"In the fourth Book of the Li Kî is called Yüeh Ling, 'the Monthly Record of the Proceedings of Government.' In it certain sacrificial observances paid

to the five Tîs are distributed through the four seasons. The Tîs are Fû-hsî, Shan-nang, Yû-hsiung or Hsien-yüan, Kin-thien, and Kâo-yang, who are styled the Greatly Resplendent, the Blazing, the Yellow, the Less Resplendent, and the Solely Correct."

This listing seems to be a description of manifestations of Saturn, before the end of the "Era of the Gods," and, the last, Jupiter after 3147 BC, as the titles clearly indicate. If the above list is in the correct order, the Gods can be assigned to a chronological series as follows (I have included the reign lengths as listed further above):

- Fû-hsî -- "the Greatly Resplendent" -- Saturn as a globe (the egg) standing above the North Pole after circa 9000 BC, and clearly seen since perhaps 5800 BC. 115 years, but elsewhere listed as "17 generations."
- Shan-nang -- "the Blazing" -- Saturn after going nova in 4077 BC. 120 years.
- Hsien-yüan -- "the Yellow" -- Saturn still in arc mode discharge, or reduced to glow mode level. This is Huang-Ti in the list above. 100 years.
- Kin-thien -- "the Less Resplendent" -- Saturn in a late, less active mode, perhaps completely reduced to glow mode plasma discharge. 78 years.
- Kâo-yang -- "the Solely Correct" -- I suspect this to be Jupiter as the Midnight Sun after 3147 BC through perhaps 2300 BC. 70 years. However, see below.

The total time span of the first four Saturn manifestations is only 413 years. This certainly falls far short of my estimate based on the Sumerian King List. But it is close to the time span between 3147 BC and the last visit by Mars/Horus (the transfer of power from Kish to Uruk). The assigned dates (years) may thus have come from a much later period.

There is also a late tradition of five Tîs which includes two or three of the three nobles, two names from among the "legendary emperors" as listed above (plus one additional name?), and excludes Yao or Shun. James Legge additionally notes that:

"The earlier accounts open with a Phan-kû, in whose time 'heaven and earth were first separated.' To him succeeded the period of the San Hwang, or Three August Lines, consisting of twelve Celestial, eleven Terrestrial, and nine Human Sovereigns, who ruled together about 50,000 years. After

them come a host of different Lines, till we arrive at the Wû Tî, or Five Emperors."

The date for when "heaven and earth were first separated" is likely the end of the manifestations of the southern ball plasmoids in 8347 BC or could be the end of the "Era of the Gods," 3147 BC, but it certainly is not followed by a 50,000-year period of rulers. It may also represent a failure of one of the periods of the southern ball plasmoids. Egyptian "mythological history" interestingly includes the same excessive time span for a large number of unnamed rulers, the "Followers of Horus." In both cases these may be asteroids on a path crossing Earth's orbit, what today would be called a meteor swarm. The 50,000-year period is likely the sum total of all their simultaneous appearances, or may represent the fact that these objects in the sky (which I will assume them to be) had appeared since ages immemorial.

The dates (in the table above) were arrived at in the 100-year period after the book burning of 213 BC, probably by Taoist scholars working from uncertain sources, and often by simply assigning reign lengths to lists of emperors of the various dynasties. The chronology which was determined at that time has the following time spans and dates for the dynasties preceding the Chin (quoting Legge):

- *Hsiâ [Xia] lasted for 439 years, from B.C. 2205 to 1767.*
- *Shang or Yin endured for 644 years, from B.C. 1766 to 1123.*
- *The Kâu [Chou] continued for 867 years, from B.C. 1122 to 256.*
- *founding of Khin [Chin] dynasty in B.C. 221.*

Legge, on the other hand, suggests a minimum of 500 years for each of the dynasties, based on Mencius (a follower of Confucius), as the Taoists writers might initially also have used. Either calculation places Yao in circa 2300 BC, or at the time of the "flood of Noah" of 2349 BC, and has Shun end his activities shortly before the worldwide climatic downturn of 2193 BC. Yao is Jupiter; Shun is the Moon. That much is certain.

The similarity to the list of the "kings after the flood" ends here. The complete time span of the three Dukes and five Emperors, from the accession of Fu Shi in 2953 BC (already one hundred years late) to the accession of Yü in 2205 BC, amounts to 748 years. This is much too long to represent the comings and goings of Mars/Horus between 3000 and 2700 BC. The celestial nature of these

"Legendary Emperors" is assured, however, in the information supplied for them.

- *"Fu Xi is represented as a human being with the body of a snake."* This is most likely the southern plasmoid and its electron beam extensions in the era after 10,900 BC.
- *"San-huang is sometimes portrayed with the head of an ox."* This recalls the celestial bull of Sumerian sources, and ought to be equated with Jupiter.
- *"Huang-di is credited with the creation of mankind; a dragon descended from heaven and carried him aloft."*
- *"After the death of Yao, Shun seated himself on the throne. Ten suns appeared in the sky, threatening to scorch the earth to a cinder. The heavenly archer Shen Yi managed to shoot nine out of the sky with his magic bow."* This will be recognized as the plasmoids delivered in 2349 BC by Venus.

The Tîs bestow the gifts of civilization to mankind -- the ordering of tribes, giving of family names, agriculture, irrigation, fishing nets, music, medicine, writing, pottery, silk worm breeding, and, amazingly, the creation of mankind itself. This is the same set of gifts received from the Gods in Mesopotamia during the "Era of the Gods."

What I think we are looking at is a recollection from the "Era of the Gods," not the celestial kings (or Gods) after 3147 BC. The period of the "Legendary Emperors" (and the three Dukes) is 748 years. My estimates from the Sumerian *King List* is that the "Era of the Gods" lasted 1072 years. I have no problem with the differences in these time spans, since it seems obvious that the Chinese records were displaced by a thousand years to mark the beginning of creation.

This involves not only a confusion of the descents of Mars during the "Era of the Gods" with the similar visits by Mars during the period after 3147 BC, but, as many people had done, a confusion of the flood of 3147 BC and the flood of 2349 BC. In effect the record, which originally ended in the flood of 3147 BC, was moved to an era also ending in a flood -- the "Noachian flood" of 2349 BC.

In the Chinese *Annals of Shu*, after about 2350 BC, Yao sends his astronomers to the four borders of China to observe the stars and determine the calendar. But, as Chinese scholars have noted, Yao already knew the answers, and states them. He also proclaims that "a round year consists of three hundred, sixty, and six days"

and that the year and the seasons are to be completed by the use of an "the intercalary month."

It is fairly certain that the *Shu* existed already in 700 BC. The chapter, however, which tells of Yao's calendar efforts, is noted, in its introduction, as a document not contemporaneous with the events that it recorded.

In fact, the text about a year of 366 days and the intercalary month proves that the documents were amended or corrected after 747 BC when the year changed to a value close to 366 days and an intercalary month would be needed to bring the months in tune with the length of the year. It certainly was not contemporaneous with Yao, when the year would have been 260 days long. The only thing I would feel confident about is that a calendar revision was made circa 2350 BC.

The first Chinese historical records were written after circa 2200 BC (the first contemporaneous statement of the Shu is in 2197 BC by the son of Yu), but woven in are a confused recollection of a series of earlier Gods.

Yao and Shun can be identified with some certainty. Yao is Jupiter as the Midnight Sun, the later Re of the Egyptians. He appears before the "flood of 2350 BC" (which is mentioned twice in the *Annals of Shu*), and which matches my assumption that Jupiter developed a coma after exiting from the asteroid belt, perhaps at about the time of the 5th Egyptian dynasty (2550 to 2500 BC) when the Egyptian pharaohs add "Re" to their names. But the coma disappeared before 2350 BC.

The recreated chronology by Chinese scholars in about 200 BC holds that Yao died in 2257 BC, 30 years after having shared his throne with his follower, Shun. Shun first shows (is born) in about 2310 BC.

Shun is the Moon, which by my estimate first showed perhaps at the time of the fall of the Absu, which the *Annals of Shu* describe as waters "standing up to the heavens." The *Annals of Shu* also records activities for Shun, each one of which takes exactly a month, and which frequently start on the first day of the month. Shun spends a great deal of time traveling on inspection trips. We could not be told more plainly who Shun is. Both Yao and Shun are referred to as "Tis," that is, "Gods." The next ruler is Yu, a human selected by Shun. Yu is listed as a "king" (a potentate over an Earthly region) and not as an "emperor" (the sovereign over all of the world). An "emperor" does not again appear in China until 2000 years later.

Hindu Parallels

Hindu sources are overwhelmingly vast, encompassing thousands on thousands of pages of poetry, often in competing and contradictory tracts. Additionally, all the doings of the earlier Gods have been heavily anthropomorphized, so that much of the texts read as if events actually happened in recent antiquity and took place in the lands of India. In the poem *Mahabharata* the Bharata battle is essentially the War of the Gods, as I have noted elsewhere, and is by some dated as starting in 3037 BC.

Others, for example S.B. Roy and K.C. Varma in *Mahabharata and Astronomy*, a chapter of "Mahabharata, Myth and Reality" (1976), attempt to place the Bharata battle by calculating when the Pleiades would have stood at the horizon at the equinox heliacally with the Sun. They arrive at a date of circa 1432 BC by calculating backwards. This suggested date has led to extensive attempt to validate the battle through archaeological finds, with no results.

Other revealing information occurs in the *Bhagavad Gita*. Kelley Ross writes:

"The most important feature of the cult of Vis.n.u is the belief that he periodically causes himself to be born as a being in the world. He does this out of compassion, and this is probably responsible for his epithet as the 'Preserver.'"

"In the cycle of time within which we live, called a Mahâyuga (either 12 thousand or 4.3 million years), there are supposed to be ten Incarnations (or Avatars) of Vis.n.u. Nine have come already: (1) as the Fish, (2) the Tortoise, (3) the Boar, (4) the Man-Lion, (5) the Dwarf, (6) Parashurâma, (7) Rama (of the Ramayana), (8) Kr.s.n.a (Krishna, of the Mahabharata), and (9) the Buddha."

"As the Buddha, however, Vis.n.u is supposed to have taught a deliberately false doctrine (which is how Hinduism always sees Buddhism), to destroy demons. The tenth Avatar, Kalkin, will usher in the end of the world (or the end of the Mahayuga)."

-- Kelley Ross at [\[http://www.friesian.com/gods.htm\]](http://www.friesian.com/gods.htm)

Neglecting the long time spans (which Hindu texts are especially given to, often to correct for lapsed predictions of periods from older sources), you will note again the eight appearances of Vishnu, with Buddha added at a much later date,

and the promise of a tenth appearance. This looks like a conflation (as with many other people) of the eight visits of Mars before 3147 BC, and the ten visits afterwards. Included in the appearances are the very early "fish" and "tortoise," likely dating to the era of the southern plasmoids.

The Calendar

The following table is a summary restatement of the days in the year during various periods, and the estimates of the days in a month (a lunar orbital rotation), if there was a Moon.

The text will explain how calendars varied over the ages, and how different people made adjustments to old calendars to meet new conditions. This information brings together data distributed over the texts of previous chapters and endnotes and adds some additional information. Hopefully, you will be able to make sense of the many calendars in use throughout the world, and why these changed.

The radius of the Earth's orbit has varied over time since 3147 BC. Additionally, the orbit was certainly more eccentric at earlier times (which does not change the orbital period). During most eras (except the last two) the orbit of Earth probably swung out to as much as 0.9 AU at aphelion. At perihelion Earth would have had to travel to well within one half AU in order to have the short average Solar years listed below. Thus the "days per year" shown below cannot be translated exactly into an equivalent distance from the Sun based on a nearly circular orbit, as we have today. It would only be an average.

Solar Year Variables

period (BC)	days per year	days per month	months per year	orbit (AU)	era and notes
10900 - 8347	?	--	--	?	First Creation
8347 - 3147	225	--	--	0.72	Second Creation
3147 - 2349	240	--	--	0.75	Old Kingdom
2349 - 2193	260	26	10?	0.79	Fall of the Absu
2193 - 1492	273	27, 28	10	0.83	Middle Kingdom
1492 - 747	360	30	12	0.99	New Kingdom
747 - today	365.24	29.5	12.38	1.00	Current Era

The "Kingdoms" refer to well-known Egyptian eras.

10900 - 8347 BC, the "first creation"

In the thousands of years before 3147 BC the Earth's orbit was determined by the path which Saturn took around the Sun. But apparently the Sumerians kept a count of days during this period, or at least years. It is doubtful if either they or anyone else kept a calendar, or even felt the need to. The Sumerians (actually, their predecessors in Northern Mesopotamia) had been keeping accounts of agricultural products since 8000 BC, and would have been perfectly capable of a tabulation of this sort, even though it ran to a numerical value of 162,000 -- a numerical value held by some as representing years, judged to be nonsense by archaeologists, but thought by me to represent days.

The Olmecs were counting years since long before 10,900 BC, but called the event of the shadow of 10,900 the "first creation." They counted in years called Tuns, double decades called Katuns, and sets of 400 years, called Baktuns by us and "400" by them.

An isolated page of the *Chilam Balam* mentions conditions before 10,900 BC, possibly reaching back to 17,000 years ago, equivalent to the European Magdalenian period, and earlier to perhaps 41,000 BC. But of course nothing is identified by years, but only as very long periods of time.

If, as I suspect, Earth was captured and carried away by Saturn any number of times in the last 40,000 years (as Tom Van Flandern's gravitational theory allows), then Earth would have experienced a series of variable years of long duration, with aphelion far from the Sun, and infrequent plasma stream contact with Saturn. This would explain the apparent long years before about 10,900 BC (see the Carbon-14 section further below), but especially the inexplicable series of glaciations.

8347 - 3147 BC, the "second creation"

A 225-day year is obvious from the "kings before the flood." It is the only close orbit that fits the data. It would have been in effect from 8347 BC to 3147 BC, and during all of the "Era of the Gods" (4077 BC to 3147 BC). The equivalent orbital distance from the Sun would have averaged 67.5 million miles (108.7 million km, 0.72 AU), but likely Earth was still traveling much further away as part of its elliptical orbit.

The Sumerian record was most likely recorded in days. Again, except for this record we have no data on any sort of calendar system in use anywhere, although the Egyptians have a record of the "lifetimes of the Gods" in years (but these, as also in China, often run simultaneously). The Maya *Chilam Balam* books record the interactions of planets for this period, and even speak to the electric eruptions of Saturn (as does the *Popol Vuh*), but provide no tallies of year counts before 3147 BC.

3147 - 2349 BC, the Old Kingdom

The 240-day year was originally found by inspecting of the data of the "kings after the flood," but it can also be inferred from the remnants of calendars in use in the following era (as in China which divides the year up into four 60-day periods). The 240-day year would have been in effect from 3147 BC through 2349 BC. The equivalent orbital distance from the Sun would have averaged 70.3 million miles (113 million km, 0.75 AU).

This period starts with the massive flood from the South Pole. This was the most monumentally disruptive event in history. All the previous celestial displays had been well away from Earth, and could be neglected. The flood changed that. Here was a separation between "before" and "after," and it is little wonder that many people now show a concern with the passage of time, and start tallies of days and years.

Within fifty years the Egyptians start an annual record of Gods or God-pharaohs. The calendar is annual, and years are named after religious festivals or other accomplishments. The years are without notation of seasons or months (there was no Moon yet).

The city of Kish in Mesopotamia similarly keeps track of Gods or God-kings by "years" (or some indeterminate measure of time). In only one instance a "month" is indicated in the record, but it seems to be an error, or may have been meant to signify a fraction of a year and was added at a much later date.

The predecessors of the Maya were counting in Tuns ("stones"), which are years, and in Katuns, which are twenty-year periods, and in a larger measure of 400 Tuns, known (to us) as a Baktun. Certainly a record of years was kept, likely in terms of the larger blocks of 20 years and 400 years, for in the 16th century AD the Maya *Chilam Balam* will be able to correctly specify the Katun of almost all

of the celestial events since 3147 BC which we know from the Eastern Mediterranean.

The Classical Maya sculptures at Palenque (circa AD 700) correctly date planetary incidents in the past -- 3000 years earlier -- from a record which must have been known as familiar history to the sponsor of the sculpture as well as the leaders of neighboring ceremonial centers. Similarly, when the Olmecs instituted the Long Count in 747 BC, they were aware that six Baktuns (2400 Solar years) had already lapsed since the beginning of the current creation. See the chapter "The Maya Calendar," for more details.

The Olmecs, Maya, and their predecessors, kept a running calendar longer than any other people on Earth. Despite the Egyptian records of regal years dating from shortly after circa 3050 BC, we are not sure today how closely the "years" of the pharaohs matched actual Solar years, since the count of years was restarted with the accession of each pharaoh, and it is not clear when a new pharaoh was invested after the death of the previous one. Later Chinese kings (in the next era) similarly did not count the first three years of a reign, at the start of accession, until later in history.

The calendar of the Mesoamerican people was divorced from the personalities of leaders, had a solid base-5 and base-20 counting system, and was built around a modern conception of what an "interval" constituted, unlike the Sumerians whose early chronologies do not add up (and overlap) or even the much later Romans who still counted the passage of time as if it were a set of objects.

The initial Mesoamerican calendar divided the year into 12 seasons of 20 days. This may have constituted an agricultural calendar, allowing 20 days for seeding, weeding (a number of times), the breaking of corn stalks, and the eventual reaping. Each of the 20 days received a name, which continued in use for the next 5000 years. This is almost certain, because there is no logical transition to the Tzolkin calendar after 2349 BC except to suggest the very early establishment of the rotation of 20 named days.

From China we get a clearer indication of an archaic calendar system, but of course as remnants retained at later ages. China seems to have had a calendar based on dividing the 240-day year into four seasons of 60 days each. China, unlike Mesoamerica, Egypt, and Mesopotamia, had distinct seasons. This division of the year into 60-day periods remained a standard for 5000 years. Both the four seasons and the 60-day periods remained in use. Even after the

Moon arrived in 2349 BC, the months were associated with the 60-day seasonal divisions.

2349 - 2193 BC, after the fall of the Absu

This period starts with the "flood of Noah," and the first appearance of the Moon. The Moon stabilized within an estimated period (by me) of 35 years. It is at this time that we see the first indications of calendars in widely separated regions of the world. The Earth is now 74 million miles (119 million km) from the Sun (0.797 AU), and the year had extended to 260 days.

The regular appearance of the Moon became the calendar, signaling to everyone the days for religious festivities. There were, during this first period after the fall of the Absu, ten months of 26 days each. At the end of ten months, the year and the cycle of religious observances started over.

The 260-day year is an acknowledged number which shows up in Mesoamerican sources as the Tzolkin calendar. The *Chilam Balam* makes specific mention of the addition of "days of the year" at this time. The earlier Mesoamerican calendar of 20 days was at this time augmented with the addition of a simultaneous rotation through 13 days, started in this period. This is the Olmec and Maya Tzolkin calendar.

The rotation through 13 numbers represented the period from a new moon to a full moon, and from full moon to a new moon. A complete rotation through 20 and 13 also distinctly named and numbered each day of the 260-day year. The Mesoamerican Tzolkin calendar is still in use today in parts of Guatemala, the Yucatan, and Southern Mexico.

In China one of the last of the mythological emperors (Gods), and the first to enter recorded history, Yao (who is Jupiter), instituted the calendar which was used by the Xia and Shang dynasties. So says the historical record, the *Annals of Shu*. But the *Annals*, gathered together in the 8th century BC, speak of Yao establishing a 366-day year. This emendation to the historical record was thus made after 747 BC, but before 685 BC, since Yao also tells his astronomers that the Pleiades mark the equinox. After 685 BC, this last was no longer true.

The new Chinese calendar continued the 60-day periods, but added the day of the lunar month to specify actual dates.

In the Babylonian creation epic, the *Enuma Elish*, the God Marduk (Jupiter) also establishes the calendar after the demise of the Absu.

2193 - 1492 BC, the Middle Kingdom

A second change in the Earth's orbit happened in 2193 BC, when the Akkadian empire failed and the Old Kingdom of Egypt came to a close. Worldwide there was a lack of rain, or a lack of light, lasting years. Mesopotamia and Egypt (and other locations) took up to 200 years to recover.

The Earth was now 77 million miles (124 million km) from the Sun (0.83 AU). The year went to 270 or 280 days (probably 273 days). I suspect that the number of months in the year stayed at 10, each approximately 27 or 28 days long. Mesoamerican culture accommodated this easily by extending their 20 by 13 Tzolkin calendar by another cycle of 13 days, and just ignoring the fact that their annual calendar was now 13 days short. Other people apparently adopted 10 months of 27 and 28 days to fill the year.

Mesoamerica divides the visible south sky into "13 zodiac divisions" of 21 days each (totalling 273 days). The 13 divisions will remain and will surface again in Classical Maya times (as the *Paris Codex* shows), but the periods of each of the 13 constellations will lengthen to 28 days by the time we reach our era, adding up to 364 days.

During the Shang dynasty (1700 to 1100 BC) there are oracle bone records which record a 27- and 28-day lunar period. The Shang (apparently) also maintained a calendar based on multiples of 60 and 10. It seems to be a holdover from a previous era, when there were 240 days in the year, but not 10 months yet.

The Chinese also established "28 lunar mansions" across the dome of the stars to track the Moon. It may be an amazing coincidence (although it should not be) that the Vedic Indians (who had no contact with China during this period) do the same. The Indian notion of "28 lunar mansions" has lasted in Indian astrology to today.

1492 - 747 BC, the New Kingdom

After 1492 BC the Earth's orbit increases significantly, to 0.99 AU. The 360-day year is a clear certainty from many records, and in effect up to 747 BC. The

equivalent orbital distance from the Sun would have averaged 92.1 million miles (148.3 million km). There were 12 months of 30 days.

The 360-day year is so well established from so many documents, that some researchers today just take it for granted, although students of antiquity have to apologetically add, "plus the five days," or make excuses for the people of this era with statements like, "they used an idealized year" or "they could not count." What an amazing statement! Counting would have been the highest science of the human intellect since the Paleolithic.

The Egyptians had apparently established a calendar after 2349 BC or 2193 BC, but it is in this era (after 1492 BC) that they divide the dome of the stars into 36 segments to mark time (at night), which later became known as "decans" by the Greeks, because they are 10 degrees apart across a 360-degree sky. These are first shown in the tomb of Senmut, 1493 BC (circa 950 BC in new chronology), the Calendar Registrar and Vizier to Queen Hatshepsut. Senmut's tomb, however, still depicts the months as having 24 days -- in accord with the much older calendar after 2349 BC. (These divisions are not our "hours" since decans were used at night, and the day was divided into 10 equal portions.) Commentators on the sculpture of this tomb simply neglect to mention or explain the division of 12 month circles into 24 parts. [\[note 21\]](#)

Babylonians establish 18 divisions of the ecliptic, of 20 degrees each, thus also 360 degrees -- or 360 days. The passage of every three divisions of 20 degrees (days) represented two months of 30 days. The 360 degrees of circular measure that we use is based on a long period of time when there were 360 days for a complete circuit of the Sun. China apparently also divided the ecliptic into 360 degrees. These divisions of the sky reflect the fact that the year was 360 days, not 365.25 days. China changed its division of the sky to "365.25 degrees" some time after 747 BC, when the year becomes longer, and kept this in effect until about AD 1500.

"During the Shang Dynasty [1700 to 1125 BC], the Chinese had in place interlocking cycles of 10 days and 12 days; together, these made a cycle of 60 days. This 60-day cycle was kept, apparently continuously, for thousands of years. Astronomical events recorded by the Shang Dynasty people were noted by the place in the 60-day cycle, as well as the lunar month and reign year. With this information on several lunar eclipses, there have been attempts to correlate the Shang calendar with our Christian calendar, but these attempts have not been successful."

-- <http://www.astro.virginia.edu/class/chevalier/astr341>

The Shang calendar records, mentioned above, date to after 1500 BC. The 60-day periods cannot be squared against the day count and month count of the previous period (the 273-day year), but it elegantly suited the configuration of the heavens which took effect after 1492 BC. It is likely that the Shang "60-day period" at that time reflected a double lunar month period, similar to the Babylonian division of the year. It is also likely that this represents a month-like division of the synodic period of Venus.

We cannot neglect Venus as a "marker" for calendar use, especially when it is noticed that many nations adopt an awkward "Venus calendar" as a means of resolving the new length of the month and the new length of the year after 747 BC. Venus would represent a stupendous sight at its helical rising or setting. Unlike any other planet or star, which all but disappears in the glare of the Sun or the haze of the horizon at helical rising or setting, Venus, at its helical rising (and in reverse order at the helical setting), would show the tail of its coma initially directed toward Earth, and thus as a bright light, and then, as soon as it cleared the Sun, the tail would expand to sweep straight up into the sky over the next few days. The "going up of Sothis," as described by Egyptian records, is not simply the appearance of Venus, but describes the spectacular levitation of its tail. It is a marker much easier to determine and much more visible than the equinox of the Sun or the periods of the Moon.

During the period of 1492 to 747 BC, the synodic period of Venus would have been exactly 600 days. The rising and setting of Venus would only fall back into sync every eight Earth years ($225 \times 5 - 360 \times 8 = 0$). Six hundred days is ten 60-day periods (equal to twenty lunar months). But it is unlikely that the start of, for example, the helical rising of Venus would have coincided with the lunar month. For this reason the Shang continued to keep track of the 60-day periods and months separately.

Calendars are very conservative, and they are not easily changed. Thus, although the number of months in the year during this era expand from 10 to 12, numerous people throughout the world steadfastly maintain a year of ten months into the 20th century AD (3500 years!), making adjustments to the Solar year by, for example, expanding the last month to 90 days or repeating it twice.

Saner people adopted the lunar month as the calendar, although in some instances at the value of the previous era, 28 days. This then became a "calendar month," resulting in the need to intercalate additional months periodically if the

calendar was to keep in sync with the apparent lunar months. The Babylonians elected, additionally, to start the year with the spring equinox of the Sun. I would suggest, in fact, that this coincided with a new Moon. (This was suggested by Velikovsky and seems correct for a number of reasons.) The new Moon might be a lot easier to spot than the rising of the Sun at the equinox.

The predecessors of the Romans, however, not only maintained the 10-month calendar, but probably rotated through the ten months twice to match the synodic period of Venus. The month count was not rectified until sometime after the era after 747 BC. Roman historians relate that one of the first kings of Rome shortly after its founding (before 747 BC) added two months to the calendar of 10 months. This would only have been needed if the Romans, as I have proposed above, still rotated through sets of 10 months.

If the historians recall the addition of two months to the ten, it would confirm the fact that prior to that time the earlier ten-month calendar was still in use. The two added months, January and February, were added after the last month of the year, December ("Ten") and, like all the other months, were set at 30 days. This must have happened before the length of the year changed again in 747 BC.

747 BC - 686 BC, The Era of Nabonassar

After 747 the Earth assumed today's orbit of 93.2 million miles (150 million km, 1.0 AU), and a year of 365.24 days. The Moon changed its period to 29-1/2 days. There were now slightly more than 12-1/3 lunar months in the year. This would cause no end of problems, for the lunar months no longer coincided comfortably with dates in the Solar year.

In other endnotes I have shown how the extra days of the year were elegantly distributed to the months of the year by the Romans. Also, in the chapter "The Maya Calendar" I have detailed the start of the Long Count of the Olmecs.

686 BC - present, The Current Era

The jolt by Mercury in 686 BC made no significant change to the year of Earth, but may have reduced the Moon's period to its present value.

In about AD 200 the Greek writer Plutarch, in *Concerning the Mysteries of Isis and Osiris*, to explain why the Egyptians had five intercalated days after the year (which celebrated the birthdays of the Gods), sets forth:

"Hermes ... playing at draughts with the moon, won from her the seventieth part of each of her periods of illumination, and from all the winnings he composed five days, and intercalated them as an addition to the 360 days".

This cannot be calculated by any method to produce the extra 5.25 days. As one 19th century translator, G.R.S. Mead, notes, "This is an exceedingly puzzling statement." However, Patten and Windsor, in *The Mars-Earth Wars* (2003), calculating backwards rather than forwards, offer the following:

"In that celestial crap shoot, the Moon lost 1/70th of her holdings, or its period, while the winner, the Earth gained a similar 1/70th of its day count per orbit, an addition to its former orbit period."

"The Moon's modern period is 29.53 days. 30 days minus one part in 70 is 29.57. Plutarch was within .04 day of being exactly correct for the new lunar period."

"The Earth's new period, 365.256 days, less one part in 70, results in an earlier period of 360.038 days. Here again Plutarch's explanation was within .04 of a day of being exactly correct. Plutarch's ancient Greek sources were solid, and his explanation for the new conditions satisfied his Roman audiences."

Plutarch here deals with the Earth shock of 686 BC, but makes the comparison to the year before the Earth shock of 747 BC. Patten and Windsor claim that Plutarch confuses Mercury (Hermes) with Mars (Ares), but there is no confusion of Mars and Mercury by Plutarch. He clearly states that it was Mercury who made the last adjustment in the Earth's orbit.

I am not sure if the ancients dealt with orbital periods to the third decimal place. 1/70th seems like an awkward fraction of 360. But in that we do not really know what change in the orbit was made in 747 BC, it is difficult to judge how the 1/70th should really be applied.

I have no idea of the correct value for the length of the year during the 60-year period from 747 BC to 686 BC, except to suggest that it was perhaps slightly longer than 365.24 days. This is based only on curious statement in the *Annals of Shu* which tells of Yao's calendar efforts, which involved the declaration that the year consisted of 366 days. I'm sure the statement (which has nothing to do with the actual length of the year in 2349 BC) was meant to bring ancient documents up to date. This was also done with regard to the location of the

equinoxes. What this suggests is that these "corrections" were made after 747 BC and before 686 BC. With the change in the heavens in 685 BC, the "corrections" were not again corrected. It was clear at that time that they would have to stand as the record of remote antiquity. The *Annals of Shu* were compiled, it is estimated, in 700 BC.

With the Moon on an odd interval of the year, religious festivals which had been signaled by visible aspects of the Moon, like the new Moon or the full Moon, now drifted around the year. Religious feast days fell 9 or 10 days behind with every following year. Calendars were changed again worldwide. The solutions varied immensely. I have detailed some of these changes in the chapter "Destructions by Mars."

Carbon-14 Radiometric Dating

A comparison is made below of real time (Solar years) and Carbon-14 elapsed time (years of 365.24 days) after corrections. The table below is from the standard "date correction" tabulation currently in use (1998). Of interest is the table's "difference" between actual and Carbon-14 dates, compared with "calculated" dates based on what I presume to be the actual number of days in a Solar year.

Raw Carbon-14 dates are based on the exponential decline of residual radioactive Carbon-14 in samples of plant carbon (composed mostly of Carbon-12). The raw data thus generates "time" as "365.24-day years." It had been assumed at first that there was a direct relationship between lapsed time as determined by the Carbon-14 measurements and real time measured in current years. This assumed both that the amount of radioactive carbon produced in the atmosphere was constant over time, and that the year has always been of the same length.

The residual Carbon-14 in a gram of (mixed) Carbon can be measured by counting the number of electrons released per minute as the Carbon-14 decays to Nitrogen-14.

This relationship was shown to be somewhat in error in the 1950s. The uncorrected Carbon-14 results always gave dates later in time (that is, younger) than the actual dates for some well-known samples. It was concluded that there were periodic fluctuations in the C14/C12 mix of carbon dioxide in the atmosphere. The raw Carbon-14 results at first were corrected by a small

percentage for dates prior to 700 BC when certain well-dated artifacts did not yield the correct Carbon-14 dates. Ultimately corrections were made on the basis of the Carbon-14 analysis of tree rings. That solved a lot of problems, for trees do not lie about their age. For dates before about 8000 BC (the oldest tree ring data available) the Carbon-14 tables are based on data from coral cores at Barbados.

The tree rings constitute an absolute and indisputable measure of time as a count of Solar years, although it says nothing about the length of the year in days. Carbon-14 can be measured for tree rings, but varies with locations and local climatic conditions, of course, and thus yields a range of Carbon-14 measurements for any actual year. As a result we end up with a table where the "actual date" is the independent variable, as shown below, rather than the dependent variable.

In the past before 700 BC, all the Carbon-14 derived dates are earlier than chronological dates, that is, younger than the actual dates. This is attributed, as I have pointed out, to variations in atmospheric Carbon-14 levels. But it could also be because the years at various times were shorter, especially before 747 BC.

The tabulation below compares my estimates of the number of days in the Solar year with the corrected Carbon-14 data. The calculated dates are on the same order as the corrected Carbon-14 dates for the time span of 4077 BC to 747 BC. That is, my calculated date corrections are in line with the fluctuations of the Carbon-14 dating technique. I am comparing my "calculated difference," which represents the complete shortfall in years, against the "Carbon-14 difference," which is only the difference in years between the uncorrected Carbon-14 time and the specific calendar year. The two columns are thus not exactly comparable.

For the time before 4077 BC, the calculated dates do not match the corrected Carbon-14 dates if it is assumed that a 225-day year continues in use. I would have to conclude that for this prior period the year could not have been 225 days, but was perhaps twice as long.

The tabulation below is annotated with the changes in the length of the year.

The full "INTCAL98" Carbon-14 correction table lists data at 50-year intervals from AD 1955. I have only shown some selected years which coincide with

changes in the length of the year. The original table also includes measures of the standard deviation, which I have neglected in the tabulation below.

1998 Atmospheric delta 14C and radiocarbon ages

!! from: M. Stuiver, P. J. Reimer, E. Bard, J. W. Beck, G. S. Burr,
!! K. A. Hughen, B. Kromer, F. G. McCormac, J. v. d. Plicht and
!! M. Spurk. INTCAL98 Radiocarbon Age Calibration, 24,000-0 cal BP.
!! Radiocarbon 40, 1041-1083 (1998).
!!

!!

!! YR AD/BC 14C age

!! YR BP

Solar BC/AD	length of Solar year	days short	calculated difference	Solar BP	14C yr BP	C-14-difference years	percent
-----	-----	-----	-----	-----	-----	-----	-----
1955	365.25 days		0 years	0	0.0	0	
1705	"		.	250	104.6	145.4	58 %
405	"		.	1555	1663.6	-113.6	7
5	"		.	1950	1985.3	-35.3	1.8
-745	"		0	2700	2455.4	244.6	9.0
-1495	360 days	5.25	10.8 *	3450	3215.0	235.0	6.8
-2195	273 days	92.25	187.6 *	4150	3752.7	397.3	9.6
-2345	260 days	105.25	230.8 *	4300	3875.8	424.2	9.8
-3145	240 days	125.25	505.1 *	5100	4537.0	563.0	11.0
-4075	225 days	140.25	862.2 *	6030	5317.8	712.2	11.8
-5805	395 #			7760	6945.0	815.0	10.5
-9505	305 #			11460	10067.7	1432.3	12.5
-10505	175 #			12460	10532.4	1927.6	15.5
-20050	300 #			22005	18527.1	3477.9	15.8

* -- indicates estimates based on this chronology

The calculated difference in years, for example, for 4075 BC =

((1495 - 745) * 5.25
+ (2195 - 1495)* 92.25
+ (2345 - 2195)*105.25
+ (3145 - 2345)*125.25
+ (4075 - 3145)*140.25) / 365.25 = 862 years

BP -- before the present

-- estimated length of the year based on Carbon-14 dates

May 2009: revised for change to 3147 BC.

May 2015: revised for change to 4077 BC.

A few observations follow:

- Comparison is between the two columns "calculated difference" and "C-14 difference, years."
- The tables use AD 1955 as a base date, so that a conversion to "Solar BP" (Before the Present) from "BC/AD" requires adding 1955.
- I have shown the INTCAL98 table in reverse order.
- Note that for two selected dates, AD 1705 and AD 405, the error correction is plus and minus some 100 to 150 years. This type of variation is not unusual for most of the table up to about the 8th century BC.
- I have used the following as "near" dates:

year of orbital change	nearest INTCAL date
747 BC	745 BC
1492	1495
2193	2195
2349	2345
3147	3145
4077	4075

- My calculated dates for the period during which I have postulated differences in the length of the year are mostly in agreement with the corrections of the table, until 4077 BC.
- We know of periods during which massive forest fires raged over parts of Europe. The table would account for these, so some of the variation could well be attributed to Carbon-14 variations. The table also shows the effects of the Industrial Revolution (not shown here).
- Similarly, the contacts (smells of perfumes) with Mercury between 806 and 686 BC could have altered the C-14 proportions of Earth's atmosphere at that time. This may be why the calculation by length of the year underestimates the C-14 year data after the 8th century BC.

Saturn in the Precambrian

I will assume that Earth orbited about Saturn, rather than the Sun, during all of the Precambrian (3.8 billion to 560 million years ago) and through the Permian (ending 250 million years ago), after which time Earth was captured by the Sun.

It is the chronology of the Precambrian I want to discuss here. Simply stated, it looks as if both the geological changes and the biological changes occurred at

600 million to 700 million year intervals. Assuming that the biological advances (increases in complexity) require the catalyst of a massive plasma contact, I'll assume that Saturn went nova at approximately 700 million year intervals. The first of these might have created the Earth in a mass expulsion 3.8 or 3.9 billion years ago (bya). A table follows. I am using dates for the Canadian Shield because it is the most studied.

Geological Dates for the Canadian Shield

(dates vary somewhat for Australian and African records)

age of the Earth in billion years	geological events	biological events
-----	-----	-----
3.8 (3.9)	(mass expulsion)	earliest dated rocks
3.1 (3.4*)	Kenoran Orogeny	first microscopic prokaryotic cells
2.39 (*) (2.5 -2.4)	Diabase dikes African Great dikes	prokaryotes continue
1.64 (*)	Hudsonian Orogeny	first eukaryotic (nucleated) cells
1.2 (*)	Duluth Grabbo (Fraser Range*)	(- alternately dated)
0.88 (0.85**) (0.7***)	Diabase dikes	first multicellular life-forms, continue into the Cambrian
0.56	Cambrian	life with solid parts
0.25	Permian	Permian extermination
0.00 (4077 BC)	"Creation"	low-level changes

* Australia also

** Australia and Spitsbergen

*** Sweden, to 0.8 billion years ago

Sedimentation and lava are first noticed in geological formations dated 3.8 to 3.2 billion years ago. This seems to indicate that the Earth possessed winds and water from a very early time (volcanoes produce water).

An interesting parameter is the spacing between major geological activities for the Precambrian. The following tabulation points that up:

3.8 (0.7) **3.1** (0.6) **2.39** (0.71) **1.64** (0.75) **1.2** (0.44) **0.88** (0.32) Cambrian: **0.56**
(0.31) Permian: **0.25** (0.25) "Creation": **0.00**

read as, **date** (interval) **date**
[time in billions of years]

The numbers in parentheses, above, show the intervals between periods of geological activity or the start of biological periods (shown in bold). I have extended the tabulation to the era of "creation," 4077 BC.

The date of 3.9 or 3.8 billion years ago marks the "birth" of Earth. The end of the first interval of 0.7 billion years is marked by the first signs of prokaryotic cells appearing at about 3.1 billion years ago. The average interval through all of the Precambrian is 680 million years (counting the last two intervals before the Cambrian as a single interval of 0.76 billion years). After that the interval between mass expulsions (nova events) decreases, and in fact the shorter interval appears already before the Cambrian.

I may actually be misreading the interval, first because the creation of the Moon seems to be dated to 4.3 bya and thus 400 million years before the birth of the Earth at 3.8 or 3.9 bya, and not at the expected 700 million year interval. This would be significant if the Moon is a Saturnian planet. Secondly, I have excluded from the list above an event dated at 3.4 bya, which would also decrease the earlier interval to 400 million years.

The concluding date for the Precambrian is 0.57 bya (570 million years ago) -- the start of the Cambrian. This is a matter of nomenclature, although it is generally held that this date follows on another massive disturbance. Otherwise there is no sharp division between the two periods. The Cambrian is defined as the sudden appearance of organisms (fossils) with hard body parts.

When I first looked at the above table I suddenly had the realization that Saturn might be due for another nova event right about now. Then I realized that this had happened already -- in 4077 BC.

The extinction at the end of the Permian, 250 million years ago, has been well established for marine biology -- 99 percent of marine species were lost. More recent research has established that this was accompanied by seven land-based upheavals (during which 95 percent of land species went extinct). The data encompasses South Africa, China, and some other locations, and is spread over an estimated tens of thousands of years. This matches my earlier proposal that it

would take 15,000 years for Saturn to enter and again exit the Sun's plasmasphere.

This long land-based Permian extinction has all the marks of a nova event. From biological considerations, it is probable that Earth was still in orbit around Saturn through the Permian. The extinction at the end of the Permian also looks like it is the result of a series of equatorial strikes and perhaps a continuous immersion of Earth in plasma flows. The date of the Permian extinctions fits well with the decreasing intervals between nova events, which had halved (from 700 million years to 440 and 320 million years) already before the Cambrian.

1.2 (0.44) 0.88 (0.32) Cambrian: 0.56 (0.31) Permian: 0.25 (0.25) "Creation": (0.00)

Meteorites

The meteorites identified as "Martian" (the SNC series) have a solidification date of 3.1 bya. Moon rocks are generally dated to 4.3 billion years ago (but also to 3.1 bya), which hints at the Moon's Saturnian origin by having an age displaced from the age of Earth or Mars by a multiple of 400 million years.

The separation dates of meteorites (as different from the "solidification dates") are based on a method of radiometric dating which depends on the supposition that meteorites have been subjected to a constant bombardment of high energy Gamma rays from outer space (which come from beyond the Solar System) since their separation from a parent body, thus transmuting some of the elements, which can be measured. These tests yield "separation ages" -- the time when the parent body of a meteorite broke up.

There is an interesting coincidence of the separation ages with other events I have proposed. The separation ages of chondrite meteorites -- 3.2 million years ago (mya) and a tail to 40 mya -- coincide, or precede, the extinction (and glaciation) of 30 million years ago and the glaciation of 3 million years ago.

The Martian SNC meteorites have separation dates of 11, 2.6, and 0.5 million years ago. These would seem to correspond to the earliest evidence of northern glaciation (11 mya) and the well-defined start of northern glaciation (2.6 mya). The separation date of 0.5 million years ago may relate to the start of the most recent glaciation. It is of course uncertain how these separation dates of rocks

from Mars relate to a history of the Earth, unless it were to be assumed that Mars had already been captured by Saturn as early as 11 mya.

I would thus have to suggest that the separation date of 0.5 mya might represent the capture of Mars by Saturn, and that the cup-and-tail markings of the Upper Paleolithic could have been extended much further back than 40,000 years in time -- 500,000 years into the Middle Paleolithic where only *Homo erectus* was the constant witness.

Iron meteorites are dated (depending on the sub-variety) at 100 to 200 mya, 100 to 300 mya, and at 500 to 700 mya. The first two dates coincide roughly with the Permian extinctions; the last set of dates corresponds to the extinction just before the Cambrian. Tom Van Flandern has noted that older meteorites will not be found, since they will have dispersed since their original breakup. Iron meteorites represent only a very small percentage of recovered meteorites. [\[note 22\]](#)

If we put together what we know of other planets and the creation and breakup dates of meteorites, we have the following tabulation:

- Neptune, Uranus: unknown
- Iron Meteorites: 4.4, 4.6 billion years ago
- Moon: 4.3 billion years ago
- Earth: 3.9 billion years ago
- Mars: 3.1 billion years ago
- Mercury: unknown
- Iron meteorite breakup: 500-700 mya (late Precambrian)
- Iron meteorite breakup: 100-300 mya (Permian?)
- Chondrite meteorite breakup: a tail to 40 mya (last extinction)
- Chondrite meteorite breakup: 3.2 mya (last glaciation)
- SNC meteorite breakup: 2.7 mya (start of northern glaciation)
- SNC meteorite breakup: 0.5 mya (start of last glaciation)
- Venus: 6,000 years ago (4077 BC)

I should add a few notes: By "gas retention" dating methods, some iron meteorites date to before the creation of the Solar System -- as it is held to be today (4.7 bya). But when this method is applied to stony (chondrite and achondrite) meteorites, dates range from 4.0 to 4.5 bya. From another source, iron meteorites peak also at 630 and 900 mya, others distribute from 150 mya to 2 bya. [\[note 23\]](#)

There are problems with dating, for it is held that the Solar System is 4.7 billion years old, and the dates of all meteorites and planets are arranged to asymptotically approach this figure, even when this is illegitimate. Older dates are preferred as representative of the age of a planet. For example, the age of the Moon is held to be 4.3 billion years, yet the rocks brought back and analyzed came in at 3.2, 3.7, 3.8, 4.2 and 4.6 billion years. At best this data would suggest that parts of the Moon's crust were still boiling out liquid magma more than a billion years after its creation, which is unlikely.

Endnotes

Note 1 --

Most of my text has blandly ignored the difference between astronomical years, Julian years, extended Gregorian years, and Eastern Mediterranean chronology. The following is how various year tallies relate:

- Astronomical years use the Julian calendar backwards from circa AD 1500, but use a year "zero" to fall before AD 1. Astronomical years in the previous era are thus equal to Julian calendar years less one year. For dates in the previous era the astronomical calendar uses signed years, like "-747" -- which would actually represent 748 BC on the Julian calendar.
- Julian years are based on the assumption that the Solar year is 365.25 days long. It accounts for the 1/4 extra day per year by introducing a leap year every four years. There is some shuffling back and forth in placing dates at the exact time of the Solar year because some years are longer or shorter by a single "leap day." The Julian calendar had been in use (as mandated by Julius Caesar) from about 40 BC (but correctly only since about 5 BC) to about AD 1500.
- Julian years are slightly longer than Gregorian years, and start to move a day or so further into the past every 400 years from about AD 1500 (from an initial divergence of 10 day). A Julian calendar is used in astronomy and, when used for the previous era, is based on a "Julian Day" count which was developed in the late 16th century AD.
- The Gregorian calendar has been in use since about AD 1500, and accurately places all dates in the proper season of the year, although with some displacement of dates like the Julian calendar due to leap days. To stay in sync with Solar years, the Gregorian calendar neglects (skips) a leap day every 400 years.

- Julian years and dates, which tend to drift backwards in time, can be converted to equivalent (backward extended) Gregorian dates. This will place the dates in the proper season, which generally is my only concern.
- The Julian to Gregorian conversion routine which I am using recalculates the Gregorian year dates for every year in the remote past based on the extrapolation of various celestial parameters. The conversion should be very close to actual equivalent days in the Solar year, as long as the seasons and the length of the year have not changed. Of course, the seasons changed after 685 BC and the length of the year changed in 747 BC (and at a number of other times in the past). Because the extended Gregorian years of the conversion program are recalculated each year, it is reasonably accurate as an indicator of where a day in the year would fall even when used for years in the past before 685 BC or 747 BC.
- The Eastern Mediterranean chronology is based mainly on the *Babylonian Chronicles* (the "Era of Nabonassar"), and used extensively by astronomers since the time of Ptolemy. But it is four years advanced over astronomical chronology. This is easy enough to correct most of the time by subtracting four years. This correction is apparently not needed before about 700 BC, or dates after the Roman era.
- Babylonian dates are based on calendar months of uncertain lengths, although historians assume some variation in calendar month lengths which would average to the lunar month. Extra months were intercalated since 747 BC. Most other nations in the surrounding region probably used either the Babylonian months (and certainly in the area-wide regionalization by the Assyrians after 740 BC) or attempted something very similar.
- I would expect that the Babylonians suddenly and inexplicitly intercalated an additional month after the Venus nova event of 685 BC, to bring the start of spring (the vernal equinox) into the correct month. There are Jewish records also of doubling up on a month sometime in this era.
- The Egyptian calendar remained uncorrected, and after 747 BC three separate calendars were in use. One is a religious Venus calendar of 360 days. Another is an administrative calendar of 365 days. And the last was a lunar agricultural calendar. We know almost nothing about any of these. On the basis of statements found in the *Canopus Decree* of 291 BC it can be suggested when the Egyptians considered a change from a 360-day calendar to a 365-day calendar. See the "Canopus Decree," Appendix I.
- The Chinese used a series of 60-day periods, within which lunar months, and the day of a lunar month, are identified. Dates from these sources have been successfully converted to Julian or astronomical dates in the 19th century AD. Since 747 BC these would have been completely correct.

During the 700 years before 747 BC the seasonal dates would have been off by under 2 days if it were erroneously assumed that the lunar months were 29.5 days.

- Dates based on the Maya Long Count (retrocalculated) are also correct to the Gregorian calendar, except for dates before 747 BC when derived by the Maya or by us today. But this last is easy to correct, since the error is an obvious incorrect assumption about the length of the year in the past. If a "tun" is a year, held to be 360 days (by the Olmecs) before 747 BC, then the difference between our chronology based on extending the current Gregorian years back in time and the Olmec representation, is only a matter of a difference of 5.25 days per year for the period before 747 BC. This amounts to a difference of 34 years to 3114 BC. The correct date for the end of the "Era of the Gods" as retrocalculated under these assumptions is thus 3080 BC. But there is more.
- Besides the error in retrocalculated dates it seems clear that when the Long Count was established in 747 BC, the intent was to represent the past in 360-day Tun years. The five extra days of the revised Haab were not part of the tally. Additionally, if the Olmecs in 747 had meant to just count days in groups of 20s, then the Tun would have represented 20 Uinals (months). Instead, the Tuns are 18 Uinals -- 360 days. Thus the 6 Baktuns which were added to the count of 0.0.0.0 were meant to represent Tun years of 360 days, under the supposition that the Tuns had always been 360 days long.
- The erroneous assumption of 360-day years extending back infinitely can be bypassed by using an "indeterminate Tun" instead. A Tun is a Tun is a Tun, which is a solar year, and the number of days in a Tun don't matter as long as the record of the past used Tuns, not days. This was certainly the case before February of 747 BC (as it certainly was at the time of the Spanish invasion). If we then subtract 6 Baktuns of 400 Tuns (solar years) from 747 BC, we arrive at a true starting date of the current era of **747 BC - 6 * 400 = 3147 BC**. In April of 2009 I changed 400 instances of 3114 BC in these texts to 3147 BC.
- Exact dates, to the day of a year, are confusing in Mesoamerican chronology because of the notion that a day "does not exist" until it is completed, and because there were two chronologies in use, with a difference of two days in the Long Count. This is generally not a problem, except when attempting to correlate dates of the Long Count with dates reported by the Spanish, who were using the Julian calendar, especially when recent translations of these accounts attempt to be helpful by converting to Gregorian dates instead, but without notifying the reader.

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Note 2 --

There are some 6 copies. Following are notes for a copy illustrated at <http://www.nb.no/baser/schoyen/>

"MS in Sumerian on clay, Babylonia, 2000-1800 BC, 1 tablet, 8,1x6,5x2,7 cm, single column, 26 lines in cuneiform script."

"Context: 5 other copies of the Antediluvian king list are known only: MS 3175, 2 in Oxford: Ashmolean Museum, one is similar to this list, containing 10 kings and 6 cities, the other is a big clay cylinder of the Sumerian king list, on which the kings before the flood form the first section, and has the same 8 kings in the same 5 cities as the present. A 4th copy is in Berkeley: Museum of the University of California, and is a school tablet. A 5th tablet, a small fragment, is in Istanbul."

"Commentary: The list provides the beginnings of Sumerian and the world's history as the Sumerians knew it. The cities listed were all very old sites, and the names of the kings are names of old types within Sumerian name-giving. Thus it is possible that correct traditions are contained, though the sequence given need not be correct. The city dynasties may have overlapped. It is generally held that the Antediluvian king list is reflected in Genesis 5, which lists the 10 patriarchs from Adam to Noah, all living from 365 years (Enoch) to 969 years (Methuselah), altogether 8,575 years."

See the section "Parallel Histories" for my reading of the ten Biblical patriarchs. [\[return to text\]](#)

Note 3 --

There is a comment by Suidas, a Greek lexicographer of the 10th century AD, who notes that "Saros" meant 222 lunar cycles of 30 days -- a period of 18 years and 6 months on a 360-day calendar and thus 6660 days. This is the cycle of repetitions for the location of the Moon.

Even if the "sars" in the original are taken to have the value of 6660 days suggested by Suidas, the reign years and totals fall into the same range of values as my calculations (see the text), although with double the values. It would change the reign of Alorus from 720 to 1332 years, and the total reign of the 8 kings on Earth from 1072 to 1983 years.

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Note 4 --

Mars's northern hemisphere is marked with eight gigantic electric blisters (named "mons" or "tholus"), but no "meteor impacts." The blisters are the result of sustained lightning strikes. That the eight blisters correspond to eight kings before the flood is likely to be a coincidence. The largest blister, Olympus Mons (three times as high as the Himalayas), shows some five separate melting pools.

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Note 5 --

The city names or patron gods are as follows:

- Eridug -- is the city of the water god Enki/Ea, probably Eri-dugga, "good city." This is (could be) the cloudbank at the northwest horizon.
- Bad-tibira -- Dumuzid was its tutelary deity. Dumuzid is known as the shepherd, Mars, who guides the dead up the stream of plasma.
- Larag -- dedicated to Pabilsag, the god of trees. This is the trunk of the tree (and occasionally looking like a leaved tree) between the cloud bank and Saturn at the top.
- Zimbir (Sippar) -- its tutelary deity was Utu (Semitic Shamash), the sun-god, Saturn ablaze at the top of the stalk.
- Curuppak (Shuruppak, Uruppak) -- The last king of Curuppak was the hero in the flood story, Ziusudra, the Sumerian Noah -- Shuruppak was dedicated to Ansud, the Goddess of grain. This not only represents the terminal event, the flood, but also the tufts of grain seen waving on the surface of Saturn.

The source of these readings is from L.C. Geerts, [\[http://www.earth-history.com\]](http://www.earth-history.com). I have added the references to the polar apparition. This suggests that the list of the "kings before the flood" is a later composite of information from diverse sources. The number of the kings probably holds true, for they match the "mythological" records of Mesoamerica, but the names of the cities were added from a description of the polar apparition. There is also "mythological" information from Sumer that Seven Ages expired before the flood (I can't source this, but Geerts mentions it). "Seven Ages" matches information from Mesoamerica, and probably represents much earlier ages dating back to 40,000 BC.

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Note 6 --

Prefaced with, *"In the translation below, mss. are referred to by the sigla used by Vincente 1995; from those listed there, mss. Fi, Go, P6, and WB 62 were not used; if not specified by a note, numerical data come from ms. WB."*

From the (Internet) *Electronic Text Corpus of Sumerian Literature* "The Sumerian king list: translation" [<http://www-etcs1.orient.ox.ac.uk/>]
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Note 7 --

The later exception is for the third dynasty of Kish:

"After kingship was brought back to Kish again, Ku-Bau, the innkeeper, she who made firm the foundations of Kish, ruled for 100 years as 'king' before Kish was defeated."

"She" is also listed (or translated) as a "barmaid" and as a "prostitute." "She" is probably the planet Venus, but cannot be dated with certainty to the destructive appearance of the planet in 2349 BC, although her "reign" seems to predate Sargon's conquest of Mesopotamia, which was started after that date.

The fact that she is associated with alcohol would date her to 2349 BC, for in both Canaan and Egypt the blood baths (the fall of the Absu) are associated with enraged Goddesses in association with alcohol. The "100 years" is probably 104 years -- two of the 52-year cycles of Venus.

After mention of Ku-Bau, the *King List* is interrupted with a list of kings of Akshak, who together reign 99 years, which is probably simultaneous with Kish, and then continues to the fourth dynasty of Kish, with the son of Ku-Bau:

"In Kish, Puzur-Sin, son of Ku-Bau, reigned 25 years as king; Ur-Zababa, the son of Puzur-Sin, reigned 400 years."

Archaeologists date Ku-Bau at circa 2400 BC, and as the only representative of the third dynasty at Kish. Puzur-Sin, the son, however, is estimated by archaeologists at circa 2360-2340 BC, and Ur-Zababa, the grandson at circa 2340 BC. Inconclusive as this is, although suggestive of the celestial beings Venus and the Moon ("Sin"), her son, it would place the barmaid and alcoholic Ku-Bau at 2349 BC.

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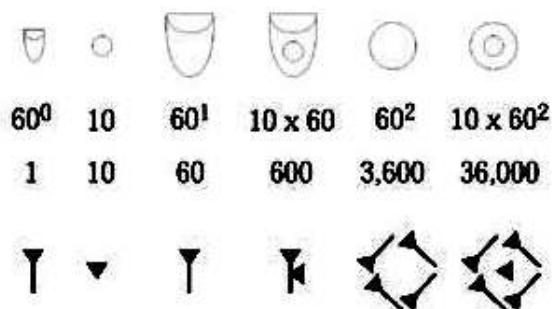
Note 8 --

There was no Moon until after 2349 BC. So, although there was a Moon at the time of the Isin compilation (after 2017 BC), there was no Moon during the earlier Dynasties. I do not know where the "3 months and 3 1/2 days" comes from. The 3 1/2 days seems like a reference to the reappearance of Jupiter after the fall equinox of 2349 BC (actually 2 and a half days), at which the 3 months could have represented the period before that when the plasma mountain outpouring of Jupiter was missing. This is speculation, although even the *Chilam Balam* reports that Jupiter (Bolon-ti-ku) was not "crying" when the Moon showed up -- in 2349 BC. Similarly, the Babylonian creation myth, the *Enuma Elish*, reports on the disappearance of the garment of Marduk (Jupiter) directly before he wars with Tiamat. This would not have been reported, I feel, unless there was very little time between its disappearance and its recovery. The garment is a skirt, the mountainous outpouring of plasma below Jupiter.













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Note 9 --

The Sumerian numbering system was a place-value system like our decimal system, but using column values of powers of 60 (we use powers of 10). But since there was no symbol for empty columns until Babylonian times, it was impossible to differentiate, for example, the meaning of two adjacent wedge marks in cuneiform. It could have a value of 2, or $60 + 1$, or $3600 + 1$.



The diagram illustrates the Sumerian numbering system with six columns. Each column shows a pictographic symbol, its value in base 60, and its decimal equivalent. The symbols are: a single wedge (1), a circle (10), a bowl (60), a bowl with a dot (600), a circle with a dot (3,600), and a circle with a dot and a dot (36,000). The symbols for 10, 60, 600, 3,600, and 36,000 are also shown in a second row of the diagram.

					
60^0	10	60^1	10×60	60^2	10×60^2
1	10	60	600	3,600	36,000
					

[Image: Sumerian numbers. After answersingenesis.org.]

Cuneiform developed from an earlier pictographic script sometime circa 2500 BC. The numbering system in use at that time also used very similar symbols for units and values of 60.

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Note 10 --

Mercury today circles the Sun at the Sun's equator, and its orbit is thus the furthest removed in inclination from the orbit of Earth. It is also on the most eccentric orbit, and with the shortest period. It is difficult to conceive of this planet ever coming anywhere near Earth. But it is certain that initially, after 3067 BC, its orbit was equal to that of Mars. In 686 BC, Mercury made electric contact with Earth. It got walloped with a repulsive electric shock, probably on an approach to Earth from the direction of the Sun. This bounced Mercury backward into a much smaller orbit, and at zero degrees inclination to the Sun's equator. The following year Mercury blazed along with Venus.

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Note 11 --

**Table of the First Dynasty of Kish,
a variation**

	Name	Length	/60	possible grouping
	-----	-----	---	-----
1	Jucur	1,200	20	
2	Kullassina-bel	900*	15	35
3	Nanjiclicma	670	11.1	
4	En-tarah-ana	420*	7	
5	Babum	300	5	
6	Puannum	240*	4	27.1
7	Kalibum	900*	15	
8	Kalumum	900*	15	30
9	Zuqaqip	600*	10	
10	Atab	600	10	
11	Macda	720*	12	32
12	Arwium	720	12	
13	Etana	635*	10.6	
14	Balih	410*	6.8	29.4
15	En-me-nuna	621*	10.3	
16	Melem-Kic	900	15	25.3
17	Barsal-nuna	1,200	20	
18	Zamug	140	2.3	22.3
19	Tizqar	1,620*	27	27
20	Ilku	900	15	
21	Iltasadum	1,200	20	35
22	En-men-barage-si	900	15	
23	Aga	625	10.4	25.4
		* -- changed from text values		
Total: 23 kings		17,551		(10)

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Note 12 --

There are perhaps other solutions to unraveling the King List of Kish. Wikipedia notes that the second entry, "Kullassina-bel," may actually be a sentence in Akkadian meaning "All of them were lord." Readings like this may apply to the next 9 names.

The names of the next nine kings of Kish (preceding Etana) are all Akkadian words for animals, e.g. Zuqaqip "scorpion" (says Wikipedia). There is an archaeological basis for En-me-barage-si, second to the last king in the list. Of Etana and the following kings many have names which appear in the earliest stories and myths. Archaeologists place the first king on the list at about 2900 BC, on the basis of no evidence except the need for normalcy. I would place the first king of the list at 3067 BC, not at 2900 BC.

It could be suggested that the nine "animal" names are equivalent to the Egyptian pre-dynastic kings with names like Scorpion, Crocodile, and Catfish Chisel. If these are discounted from the list, then, starting with Etana there are only 10 kings left (plus the last king, Aga). This would be fully in expectation of finding a list of ten appearances of Mars over a 300-year period.

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Note 13 --

As another example, although this differs from interval counting: After 40 BC Julius Caesar instituted the Julian calendar, which included a provision for a leap day to be added every four years. The Roman Senate, however, started to add a leap day every three years, a mistake which was not recognized for 36 years. The error came about from the Roman practice of counting years inclusively, so that the first year of a span of four years was the same as the last year of the previous span.

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Note 14 --

Matthias Tomczak, in material for a course in "Science, Civilization and Society" at Flinders University in Australia, writes, with respect to the duodecimal counting system:

"A method still in use during the 20th century in the Middle East uses the thumb to point to different parts of each finger [the three finger bones]. Each finger can be used to indicate three numbers, so the four fingers of one hand cover the numbers 1 to 12. This produces the number 12 as an alternative base for a "natural" number system, known as the 'duodecimal system'."

"A logical extension of the duodecimal system is the 'sexagesimal system', which uses the base 60. It uses one hand to count from 1 to 12 and the other hand to indicate the multiples of 12."

If the thumb of the other hand is used to point first to the palm and then to the tips of fingers to tally the counts of 12s made by the other hand, then a total of 60 can be counted. Tomczak notes that this system, or something like it, is still used at stock exchanges.

The duodecimal counting system can also be derived from a method of counting which imagines each finger of a hand as falling in the space between objects to be counted. A single object is not counted. One finger represents two objects, two fingers counts three objects, etc. A dozen is represented by two hands.



A perusal of Maya glyphs immediately turned up the figure above, where a closed fist with **one extended finger** stands for the cardinal number "two" (Website of John Montgomery). I doubt if there will be others representing "three," "four," etc. An image of a thumb is used in some glyphs to represent the number one.

We teach our children the one-to-one correspondence of fingers and objects, and it is so ingrained from an early age that most of us cannot imagine any other method of tallying objects. Ask any two-year old how old she is and she will hold up two fingers. But at her age it is a symbol, not an enumeration. I have had three-year olds disagree with me when I held up three fingers to denote their age because I included my thumb -- they were not the correct fingers.

Still in use in Pakistan (one of my neighbors tells me) is an almost identical method of counting to 16 on one hand, using the tip of each finger and the joints

-- thus 4 counts per finger. This leads to a count of 32 on two hands. It is possible that the sets of 32 stones set up at Western European barrows represents such a counting base (like our base ten) or that it just meant "a lot."

The same can be derived by counting the tips of four fingers with the thumb, and then the base, for a total of 8. The counts of 8s can be tracked with the other hand in fingers: 4 fingers is a count of 32.

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Note 15 --

I have earlier suggested that both the axe (or torch) in the head of Mars and the mirror on his forehead could easily date to the period of 800 to 685 BC. The axe in his head probably represents the lightning strike by Venus, which could be placed in 776 BC. The mirror, often depicted as a smoking mirror or a mirror inset with a torch, clearly is the northern ocean (or the remnant of the included deeper ocean, Deuteronilus) steaming water vapor into space. This would account for some of the strange Mesoamerican depictions of Mars. It seems likely that the sublimation of the last ocean of Mars continued into the current era.

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Note 16 --

A reasonable attempt was published by Raúl Erlando López in 1998. López assumes a misreading as sexagesimal of figures originally listed in decimal notation. The assumption by López is that the list of Sumer is derived from the book of Genesis, or a common source, although this does not account for the long lives of the patriarchs. He writes:

"The initial section deals with kings before the flood and is significantly different from the rest. When the kingdom durations of the antediluvian section are expressed in an early sexagesimal numerical system, all durations except two are expressed as multiples of 60^2 . A simple tally of the ciphers used yields six 10×60^2 signs, six 60^2 signs and six 60 signs."

"The lives of the biblical patriarchs, however, have a precision of one year. If Adam and Noah are not included (as in the King List), and the lives of the patriarchs are similarly rounded to two digits, the sum of the lives has six 10^3 signs, six 10^2 signs and six 10 signs. In addition, if the number representing the sum of the ages was wrongly assumed as having been

written in the sexagesimal system, the two totals become numerically equivalent."

-- Raúl Erlando López, "The antediluvian patriarchs and the Sumerian King List" *CEN Tech. J.* (1998)

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Note 17 --

Rome recounts a similar history of seven kings -- eight, if Aeneus is counted. But the Roman historians then list their reign lengths at about 35 years. Wikipedia reports:

"This traditional account of Roman history, which has come down to us through Livy, Plutarch, Dionysius of Halicarnassus and others, is that in Rome's first centuries, it was ruled by a succession of seven kings [starting with Romulus]. The traditional chronology, as codified by Varro, allots 243 years for their reigns, an average of almost 35 years, which, since the work of Barthold Georg Niebuhr, has been generally discounted by modern scholarship."

"The Gauls destroyed Rome's historical records when they sacked the city after the Battle of the Allia in 390 BC (Varronian, according to Polybius the battle occurred in 387/6) and what was left was eventually lost to time or theft. With no contemporary records of the kingdom existing, all accounts of the kings must be carefully questioned. The list of kings is also of dubious historical value, though the last-named kings [two Etruscan names] may be historical figures. It is believed by some historians (again, this is disputed) that Rome was under the influence of the Etruscans for about a century."

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Note 18 --

Ussher lists Abraham as born 352 years "after the flood"; Josephus has Abraham born 292 years after the flood. This last figure also seems to recapitulate the 300-year span of kings at Kish, neglecting the initial 80-year period after the flood when there were no kings. But I think that Abraham should be identified with Jupiter rather than Mars.

These calculations involve playing along with the inadvertent errors promulgated by the editors of the Bible in making *their* analysis.

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Note 19 --

Peter A. Piccione, at the University of Charleston, SC, uses the following for course material. I have added the numbering and reign lengths.

Dynasty I: 3050-2857				
1	Horus Aha	Meni		3050-
3016	34 years			
2	Horus Djer	Iti		3016-
2970	46 years			
3	Horus Wadji	Iterti?		2970-
2963	7 years			
4	Horus Dewen	Khasti/Zemti?		2963-
2949	14 years			
5	Horus Andjib	Merpibia?		2949-
2897	52 years			
6	Horus Semerkhet	Iri-Nebti		2897-
2889	8 years			
7	Horus Qa'a	Qa'a-Nebti		2889-
2859	30 years			
8	Horus Ba?	(sequence uncertain)		
9	Horus Seneferka	(sequence uncertain)		2859-
2857	2 years			
10	Horus [. . .]	(sequence uncertain)		
Dynasty II: 2857-2705				
11	Horus Hetepsekhemwy	Hetep-Nebty	2857-	
	Horus Nebre		-2815	42 yea
rs				
12	Horus Ninetjer			Ninetjer-
Nebty 2815 - 2778	37 years			
13	Horus Weneg?			Weneg-
Nebty 2778 - 2772	6 years			
14	Sened		2772 -	
	Nubnefer		- 2751	21 yea
rs				
15	Seth Peribsen		2751 - 2743	8 yea
rs				
16		Horus		Sekhemib(-
perenma'at)	2743 - 2732	11 years		
17	Horus Khasekhem			
	(= same person as the next king)			
	Horus-Seth Khasekhemwy			

(-hetep- netjerwyimef)

2732 - 2705

27 years

Source: P. A. Piccione, University of Charleston, SC.

Other sources date Aha to 3000 BC.

[\[return to text\]](#)

Note 20 --

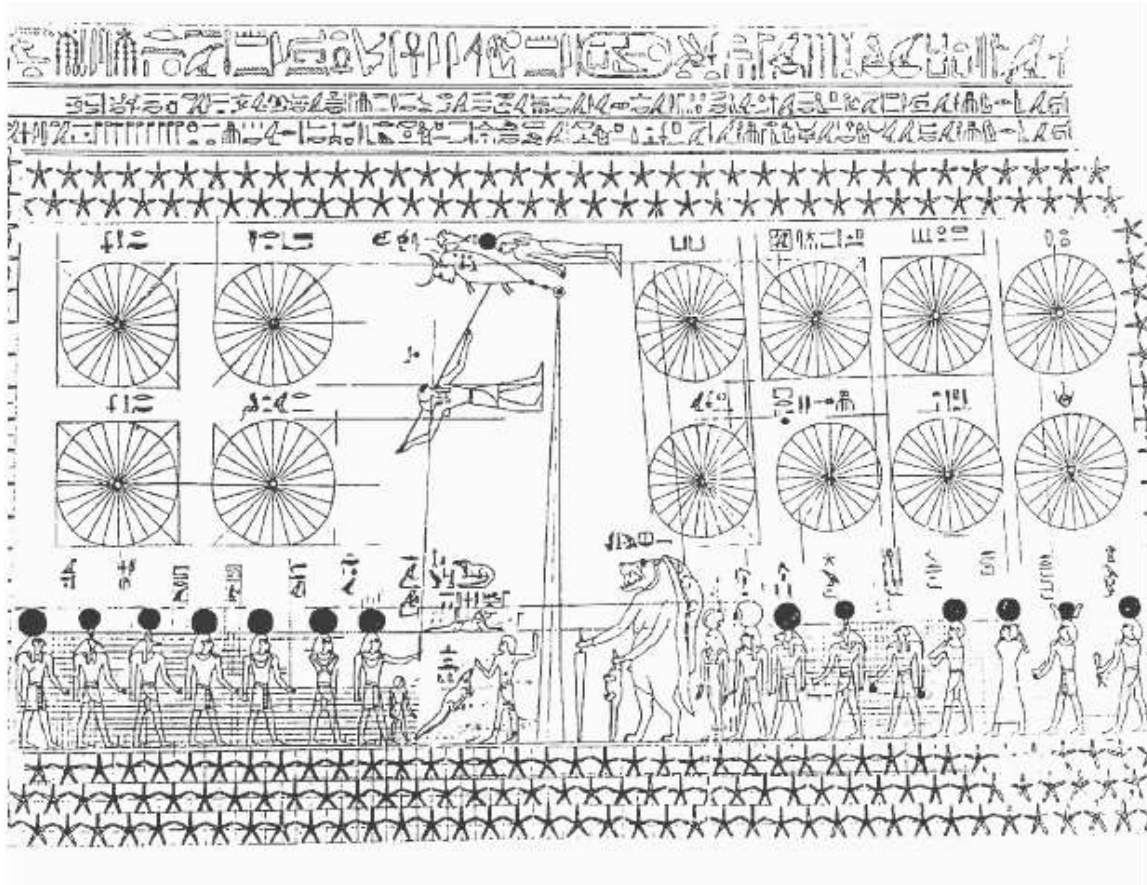
Dates for Peruvian pyramids are from Carbon-14 dates of baskets left behind with the fill material of rocks and pebbles. At Caral in Peru dirt pyramids are dated to 2627 BC. (San Marcos University, Peru; *CS Monitor*, Jan 3, 2002.) Caral is the oldest of some 25 sites in the Norte Chico region of Peru, where other pyramids were started after 2556 BC (Northern Illinois University, Dec 23, 2004; the date was listed as "4560 years ago.")

Occupancy of these sites dates to 3100 BC. Thus the pyramids start 400 to 500 years after the local people first start using the sites. This is no different from Egypt and Mesopotamia. In all cases construction of pyramids does not happen before 2700 BC.

[\[return to text\]](#)

Note 21 --

Senmut is dated to about 940 BC in the revised chronology of Velikovsky.



[Image: A portion of the tomb of Senmut, circa 1500 BC, Thebes. Construction halted in 1493 BC. After Wikipedia, under GNU General Public Licence.]

For an analysis of the images see Ove Von Spaeth "Dating The Oldest Egyptian Star Map" *Centaurus* V42 (2000). Von Spaeth notes that the rock cut tomb was abandoned during construction in 1493 BC (what a coincidence!). The central portion depicts the circumpolar constellations. The circles represent 12 calendar months of 24 divisions each, for a total of 288 days -- 15 days longer than my estimate of 273 days for the length of the year after 2193 BC.

There are other possibilities. Redating to 940 BC is one option. Additionally, since calendars are very conservative, it is possible that the 24-day months are a holdover of an earlier calendar (when there also were 10 months, not 12). It would not be untypical for a religious calendar to retain an older outdated form. A portion of the decans and planets are shown on the bottom. Von Spaeth suggests the planets show a conjunction of all the planets (except Mars) in 1534 BC (under uniformitarian conditions). Later tombs duplicate this arrangement when the conjunction is repeated (with Mars). The conjunction of all the planets

marks the start of a "Great Year," although this is a notion dating to the 7th century BC.

[\[return to text\]](#)

Note 22 --

Tom Van Flandern, various documents in the "MetaResearch Bulletin" series at [\[http://www.metaresearch.org\]](http://www.metaresearch.org), and see his book *Dark Matter, Missing Planets and New Comets* (1999).

[\[return to text\]](#)

Note 23 --

Most of this information is from the *15th Encyclopedia Britannica* (1984), article "Meteorites," plus an article on "radiometric dating."

Ages vary with the reports in use, but as an example of what is being maintained here -- that the Moon is considerably older than the Earth -- note the following quotation from Wikipedia: "The oldest Moon rocks are up to 4.5 billion years old, making them 200 million years older than the oldest Earth rocks, which are from the Hadean eon and dated 3.8 to 4.3 billion years ago. The rocks returned by Apollo are very close in composition to the samples returned by the independent Soviet Luna programme." -- quoted by Wikipedia from James Papike, Grahm Ryder, and Charles Shearer "Lunar Samples" in *Reviews in Mineralogy and Geochemistry* (1998) and from J.C. Laul and R.A. Schmitt in "Chemical composition of Luna 20 rocks and soil and Apollo 16 soils" *Geochimica et Cosmochimica Acta* (1973).

Note that the difference in ages could be taken either as 200 million years (as was done above) or 700 million years (as I maintain in the text).

[\[return to text\]](#)

Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()
units: million == 1,000,000; billion == 1,000,000,000;
AU == 93,000,000 miles.



Appendix B: Celestial Mechanics.

\$Revision: 42.12 \$ (mech.php)

Contents of this appendix: [\[Scavenging Planets\]](#) [\[The Asteroid Belt\]](#) [\[3147 BC, End of Paradise\]](#) [\[Outer Orbits\]](#) [\[Inner Orbits\]](#) [\[Axial Inclination\]](#) [\[Plasmasphere Interactions\]](#) [\[Gyroscopic Reaction\]](#) [\[Lightning Strikes\]](#) [\[Compression Marks\]](#) [\[The 52-Year Cycle\]](#) [\[Venus\]](#) [\[Mars\]](#) [\[Using an Ephemeris\]](#) [\[The 8th and 7th Century\]](#) [\[776 BC, the Ballgame\]](#) [\[747 BC, First Shock\]](#) [\[686 BC, Second Shock\]](#) [\[Endnotes\]](#)

**"The main theories of astronomy are as remote
from experience as to be spooky."**

-- Alfred de Grazia *The Divine Succession* (1983)

[Text and graphics updated February, 2010.] This appendix presents the celestial mechanics I have used as background to the narrative of this text for the event of 3147 BC and the era after 3147 BC. Note that I will use the year 3147 BC for the end of the "Era of the Gods" throughout this appendix. After looking at the initial conditions, the remainder of this appendix presents likely later orbits of the inner planets, which do not deviate from what would be expected under the influences of gravitational and occasional electric forces.

One reason for this discussion is to counter interpretations like, "Mars then left its regular position and almost collided with the earth in about 700 BC," as Stephen Jay Gould wrote in *Ever since Darwin* (1977). Planets do not leave their orbits.

But orbits change over time in relation to each other, enough to have caused interference in the remote past, without leaving much evidence of orbital disturbances. It is unfortunate that Velikovsky titled his 1950 book *Worlds in Collision*, when there were no collisions, and could not be. Planets are not billiard balls. The electric interaction between "colliding" planets happened at distances of tens of millions of miles, with the exception of the era of 800 to 650 BC, when Mars indeed came very "close."

Scavenging Planets

I have in previous text maintained that Saturn would have come in from the far reaches of space with a large positive charge, larger than any of the planets of the Solar System. The Solar System planets would thus be at a negative potential with respect to Saturn.

First, this explains how in meeting up with Jupiter in 3147 BC, both the Saturnian planets and Jupiter were cast into orbits far removed from the Sun. I'll detail the likely geometry of this further below.

Second, it explains how Saturn could have reduced its orbital period from 27,000,000 years to what I estimate to be something on the order of 4000 to 5000 years, and subsequently reduced it to a value close to a year. In both of these cases Saturn would have been pulled into the Solar System on meeting up with Jupiter on one of its excursions into the inner region of the Solar System. Saturn became a Solar System planet because of the attractive forces exerted between Jupiter and Saturn.

At an orbital period of 4000 year (just as an example) the radius of the orbit would still be an astounding 252 AU. This means Saturn would exit the Solar System on its orbit. A measure of 4000 or 5000 years for the return of Saturn is exactly what Book 11 of the *Chilam Balam* proposes -- exceedingly long periods of no sightings of Saturn between appearances, "when there was infinite night." When Saturn made an appearance, it would have been seen for a thousand years before disappearing again, because close to the Sun Saturn would travel at the expected speed of a comet or any celestial body.

It could be expected that Saturn and its companion planets would have shown in the sky as a giant meteor. But there is no recognition of a plasmasphere tail among any of the Venus Figurines. Comets at time do not show a tail, and only infrequently show a bow shock. Comet Holmes in 2007 had only a slight, hazy, and short tail. Comet Holmes was also described as looking like a "bright yellow star." The reader might recollect a description of figurines from the Gravettian period of the Upper Paleolithic as being carved in buff or amber colored limestone (reflecting the buff color of the Absu).

That means that during the Upper Paleolithic, during the time of Cro-Magnon, Saturn was seen periodically. The long periods between appearances accounts for the fact that the Venus Figurines apparently disappear from the

archaeological record for periods of up to 10,000 years. Only after about 10,900 BC are we certain that the period of Saturn had been reduced to something on the order of a year. This marks the start of the Younger Dryas, and marks the time when Earth was scavenged also. The change in the orbital period of Saturn may have happened earlier, at the beginning of the Neolithic, although nothing of the Venus Figurines show up before the middle of the Neolithic, circa 6000 BC.

Third, it is the greater positive charge on Saturn which also accounts for how all the other Solar System planets could have been scavenged over a period of the last ten million years. In turn each of the smaller Solar System planets was propelled closer to Saturn, and each found a subpolar or suprapolar location.

At first sight, it would appear that a magnetic connection sustained the grouping of the five-planet stack, except that Mars has no magnetic field. This is also not a case for suggesting that, with the lack of a magnetic field, Mars might have wandered from its position directly below Mercury and directly below Saturn. But, except for the periodic lowering of Mars, we have no real record of wandering (However, Talbott does, in the imagery presented in *The Saturn Myth*). What is much more certain is that Mercury wandered left and right, which shows up in the fan- or shell-shape of the plasma streams impinging on Mercury (as detailed by Talbott).

It is not the magnetic field that aligns the planets. They are aligned because that is how they are normally oriented in the space of the Solar System -- with north as up and south as down, and with a north-south magnetic dipole presented the same way. Jupiter, however, is the exception; its magnetic north pole is at its geographic south pole.

Magnetic forces are not powerful enough to move planets around, and additionally, it is not assured that all of these planets in the Saturnian group even had magnetic fields.

It is thus a coincidence that we find the planets "as if" they are held together by magnetic forces. With all the south and north poles aligned -- even with Uranus on its side so that its south magnetic pole is above the north magnetic pole of Neptune.

Yet they also violate the concept of magnetic attraction in that they remain separated from each other. We have to suggest that most likely the planets stayed separated because of their electric fields, but this also is negated. The

obvious passage of plasma from Saturn to the other planets reveals that Saturn and its solar planets were not at the same charge level.

So what kept the planets apart? Van Flandern would say that the captured planets were just satellites traveling with Saturn. They will remain on an orbit around the Sun parallel to their primary. Apparently what happens at close range is entirely different from what we would expect planets to experience at large separation distances. We can find other excuses: the magnetospheres of planets are very complex, with space-charge sheets and currents crossing at different locations. And the flow of plasma, in that it is an electric current, creates additional local magnetic fields.

The Asteroid Belt

The asteroid belt of the Solar System is strewn end to end with rocks and grains of silicate dust. In the 1970's it was estimated that there might be 100,000 asteroids. Today 300,000 have been detected and plotted, and the estimate for additional smaller asteroids ranges into the millions.

The distribution of asteroids is mainly in the region from 2 to 3.5 AU, between the planets Mars at 1.5 AU and Jupiter at 5.2 AU (with more among the inner planets and at 40 to 50 AU). The eccentricity of the orbits and the great variety of orbital inclinations suggest additionally that the asteroids represent a very old history of cataclysmic interactions. The distinct groups of iron meteorites and 3 groups of distinct stony meteorites (distinct by chemical and crystalline makeup) constituted four separate rocky or dead planets which could have inhabited the space between 2 and 3 AU, which were blown apart by Saturn entering the Solar System in the remote past, after a long absence.

These outer planets would have been the first objects encountered by Saturn on entering the Solar System and the prime target for interplanetary thunderbolts of huge proportions. Jupiter, Neptune, and Uranus could absorb such lightning strokes, for they have gas and liquid envelopes. A rocky planet would not withstand a bolt -- the rush of electron to the surface would break the bonds of the silicates and blow the planet to smithereens, especially if it was similar in size to Mars or the Moon.

A plot of locations and plots of orbital inclinations and orbital eccentricities of the asteroids belt reveals that the objects are in wildly chaotic orbits, and have been subjected repeatedly to unpredictable gravitational and electric forces as

Saturn passed through the belt (and much later followed by the Titans and Jupiter after 3147 BC). The dispersion of the asteroids is probably mainly due to gravitational disturbances and electric repulsion. The ubiquitous cratering, however, is due to electric arcing.

... source of the Asteroid Belt

In the 1960s and 1970s, on the basis that the asteroid belt represents the remnants of the dust which "coagulated" to form the Sun and planets, it was assumed that some objects (asteroids or comets) would be traveling on hyperbolic trajectories, representing objects which either had recently been subjected to "collisions" with other objects, or were entering the Solar System from outside of the region beyond any of the planets. On an "open hyperbolic trajectory" such objects would never return after once entering the inner reaches of the Solar System. If this was how stars and planets were created, then this should still be happening.

But no hyperbolic orbits have ever been found. All trajectories are closed elliptical orbits -- paths which bring the meteor or asteroid back. This suggests that the asteroids are not remnants of "planet formation dust," and that the asteroids are local residents (they do not enter from interstellar space). Additionally it indicates that the interactions which led to their wildly elliptical and greatly inclined orbits were local and had culminated a long time ago, rather than continuing to today.

I would suggest an alternate theory of planetary breakup and dispersal of the material over time. An estimate of the depletion of the asteroid belt could be made on the basis of the repeated passages of Saturn through the belt. If on a first breakup of a planet only 15 percent remains on closed orbits, and then, with each of 40 passages of Saturn (20 in each direction) through the broken rocks perhaps another 10 percent was lost -- in effect ejected from the Solar System -- then what would remain would be only 0.2 percent of the original mass (0.002).

$$0.15 * 0.9^{40} = .002$$

Today it is estimated that all the asteroids together make up a mass of a sphere less than half the diameter of the Moon, and thus 1/8th its mass. The mass of the moon is:

$$7.35 \times 10^{22} \text{ kg.}$$

One eighth of this is about:

1×10^{22} kg.

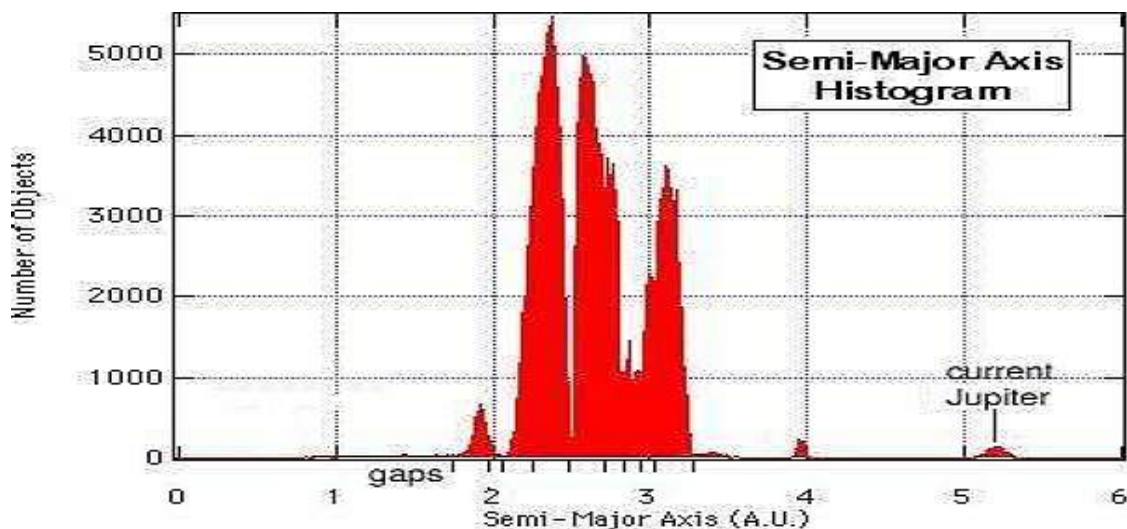
If today the remnants add up to only **1×10^{22} kg**, then the original planets could have amounted to a half dozen moon-sized to mars-sized bodies -- totalling **500×10^{22} kg**. [\[note 1\]](#)

- The Earth has a mass of **600×10^{22} kg**.
- Mars has a mass of **64.1×10^{22} kg**.
- The Moon is **7.3×10^{22} kg**.

... gaps in the Asteroid Belt

What is left today is an array of objects widely dispersed, mostly located in a region spanning some 200 million to 350 million miles (320 million to 565 million km) from the Sun, but all on stable orbits. One element of this stability is the existence of some ten distinct gaps where no asteroids (or few) are found. All these gaps are at locations where the orbital period is a fraction of Jupiter's period today, 2:1, 3:1, etc., up to 5:1 (and a few odd ones).

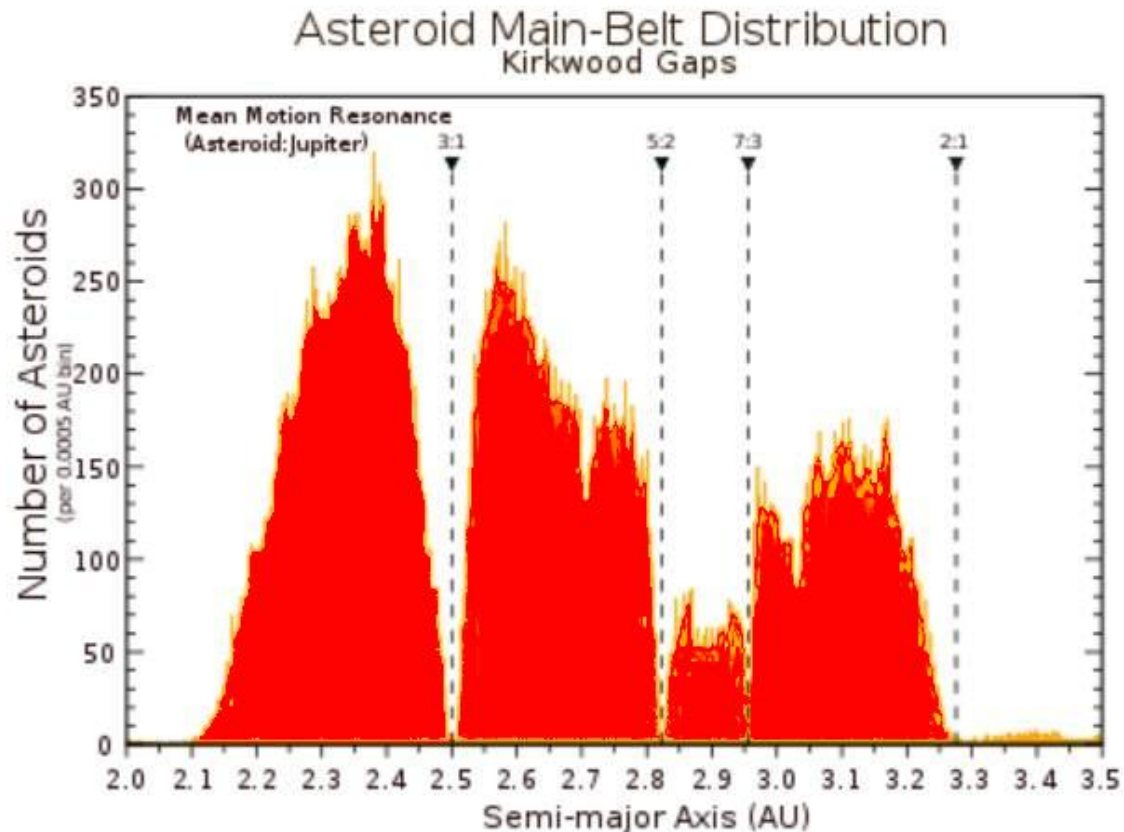
It is assumed that the gaps were created as asteroids at the gap locations passed the radial location of Jupiter (objects closer to the Sun travel faster than objects further away) and were thus subjected repeatedly by the gravitational tug of Jupiter with each passage past the location of Jupiter, even though this amounts to only a fraction of a percent of the gravitational effect of the Sun.



[Image: "Histogram of the semi-major axis of asteroid objects; gaps in the belt are marked." (Data: <ftp://lowell.edu/pub/elgb/astorb.html>. Plotted at case.edu/sjr16/; additional graphics added.)]

This would certainly be true if Jupiter had been at its present location for billions of years. But this would not be true, or would represent only an incomplete process, if, as I have maintained, Jupiter had only arrived at its present location since about 2200 BC. Yet many of the gaps, especially those far from Jupiter's current location are well established, although admittedly many gaps represent only approximations to the current orbital period of Jupiter (some of which is due to the difficulty in making observations). [\[note 2\]](#)

If Jupiter had been at its present location for over 4 billion years, then the gaps in the asteroid belt, even though resulting from gravitational tugging amounting to a fraction of a percent of what an asteroid experiences from the Sun, would have to be more clearly defined than they are. Over the course of 4 billion years the belt would have segregated into very clearly defined rings and the gaps closest to Jupiter would have been the most clearly defined. Astronomers have wondered why the asteroid belts are not uniformly segregated into rings. And there have been questions on why inward gaps (nearer to the Sun) are better defined.



[Image: Kirkwood gaps in the asteroid belt; detail.]

In fact, we might probably expect that all of the material would have dispersed by now. Four billion years is a very long time. Asteroids at the 2:1 resonance location would have passed Jupiter 8 billion times; asteroids at the 5:1 resonance location would have passed Jupiter 20 billion times.

If Jupiter actually had spent all of its time, since the earliest creation of the asteroids, at a much closer distance to the Sun, rather than 5.2 AU, could the same gaps be accounted for? In fact, if Jupiter were located at 0.7 AU the same gaps would result from the resonance with the period of an inner location, 1:4, 1:5, etc., up to 1:10 (and a few odd ones).

Resonance of Asteroid belt gaps for current and previous location of Jupiter				
approximate asteroid gap [AU]	Jupiter at 5.19 AU		Jupiter at 0.7 AU	
	value	resonance	value	resonance

1.78	1:0.201	5:1	1:4.05	1:4
1.91	1:0.223	9:2	1:4.51	2:9
2.06	1:0.250	4:1	1:5.05	1:5
2.26	1:0.287	7:2	1:5.80	1:6
2.50	1:0.334	3:1	1:6.75	1:7
2.70	1:0.375	8:3	1:7.56	3:4
2.82	1:0.401	5:2	1:8.09	1:8
2.96	1:0.431	7:3	1:8.70	?
3.03	1:0.446	9:4	1:9.01	1:9
3.28	1:0.502	2:1	1:10.14	1:10

This is not entirely a coincidence, since any inner orbit for Jupiter would also establish resonances throughout the asteroid belt. I checked for resonances at other distances, but 0.7 AU looks most likely. [\[note 3\]](#)

From my perspective, this answers the question of how close Jupiter was to the Sun before 3147 BC. I had earlier suggested, "at one or two AU." Now Jupiter can be placed at 0.7 AU with fair certainty and probably on a fairly circular orbit. (0.9 AU is another good possibility.) Saturn and its planets would have to be on an elliptical orbit which came closer to the Sun at perihelion and extended past 0.7 AU in its aphelion. That is the only way that Jupiter and Saturn could have "collided" in 3147 BC.

If Saturn were on an eccentric orbit with a period of 225 days (as suggested in Appendix A, "Chronology") then the average orbit of Saturn would have to be 0.72 AU. Assuming an eccentricity of 0.25, perihelion would have been at 0.54 AU and aphelion at 0.9 AU. This would certainly not fry the Earth to a crisp. It would keep the northern hemisphere at a reasonable climate (although warm).

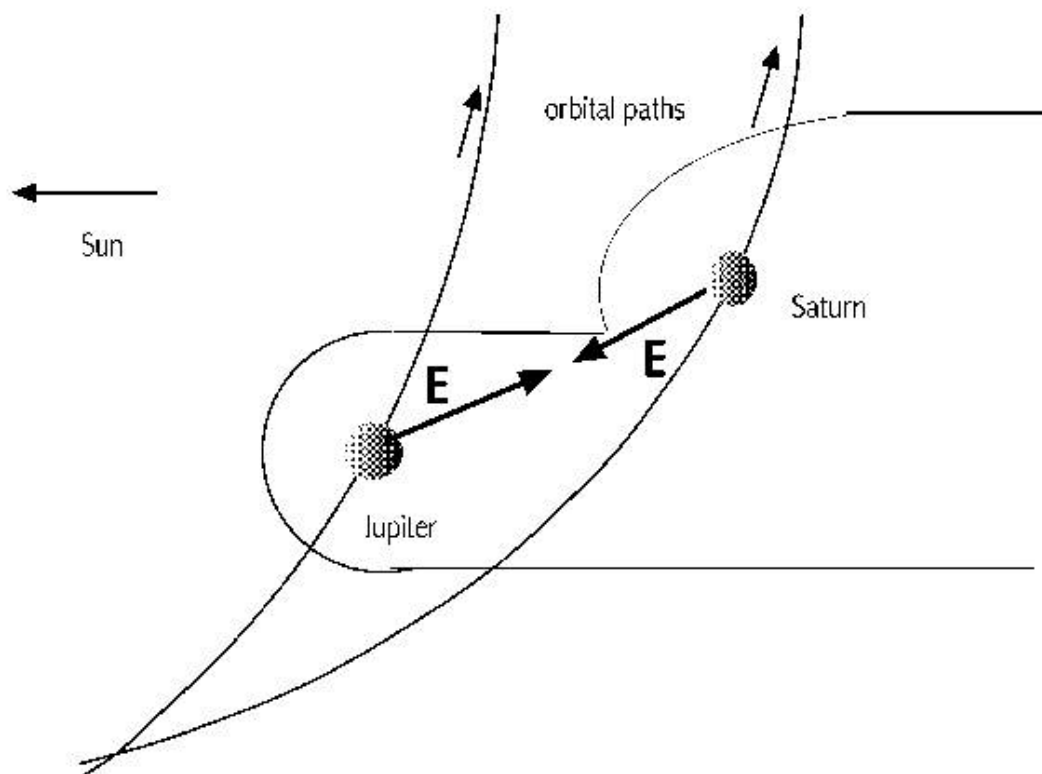
An eccentricity of 0.25 is large compared to that of the planets today, but not unrealistic. Mercury today has an eccentricity of 0.20, and Mars still has an eccentricity of nearly 0.10. In 670 BC Venus had an eccentricity of 0.15. One reason for selecting an eccentricity of 0.25, is to keep the Earth at least a reasonable distance from the Sun. A perihelion of 0.54 AU is halfway between the current orbits of Venus and Mercury.

3147 BC, the End of Paradise

(Revised 5/11, 7/11, 3/13, 1/14, 3/14)

In 3147 BC everything came apart. I imagine a scenario like the following, although other arrangements could as well have been the cause. We begin with Saturn and the planets traveling with Saturn, while on their elliptical orbit.

Jupiter caught up, traveling faster on an inner orbit. This corresponds also with the imagery from antiquity: that the city of the Gods -- Saturn and its satellites standing above Earth -- was destroyed by the bull of heaven. Back lighted by the Sun, and traveling on an orbit inclined above Earth, the bull's Aurocks-like horns were seen.



[Image: 3147 BC, an electric interaction between Jupiter and the Saturnian planets. Illustration by J. Cook.]

I would presume that the interaction of 3147 BC was based on something of this sort, or a close parallel. When the plasmaspheres of Jupiter and the Saturnian planets made contact they were subjected to electric forces of unbelievable magnitude, for the distances separating them was relatively small -- my estimate is 6 to 14 million miles (10 to 23 million km).

Although it is possible that the plasmaspheres of the two planets made contact at a maximum separation (17 million miles, 27 million km), from what scant

information we have of the results, it seems much more likely that the contact was made at relatively close quarters.

I was not happy with my earlier attempts at moving the four large planets out to huge distances with repulsive forces. Then I realized that an interaction with Saturn would have involved attractive forces. This is accounted for by realizing that Saturn came from outside the Solar System, and would have had a very considerable positive charge, larger than that any of the Solar System planets.

Having Saturn much more positive than any of the other planets makes Jupiter negative with respect to Saturn. This defines an attractive force between the two. This would result in a serious impulse at an angle to the orbital direction. The result would be to place the planets on elliptical orbits which, at the extreme, would have cast them out of the Solar System.

This is how Earth's artificial satellites change from one orbit to another, except that the Earth satellites receive a second impulse to inject them into the destination orbit.

If then Saturn were to meet Jupiter while inside of Jupiter's orbit, Jupiter would have been yanked away from the Sun, thus assigning it to a far distant location from the Sun. The Saturnian planets would have been yanked backward, onto trajectories at an angle to their original orbits.

The forward speed is determined by the orbit. Slow speed, far out; high speed, close in. From Kepler's "third law" you can find the speed, or at least the period:
 $(\text{orbital period})^2 = (\text{orbital radius})^3$

How then, did Jupiter, Saturn, Uranus, and Neptune all stay within the Solar System, although at very distant orbits, and even circularized? It just does not make any sense if we only think in terms of elliptical orbits. The only solution is to suggest a spiral orbit. This is not discussed in orbital dynamics, since it leads nowhere useful in terms of altering Earth satellite orbits.

But each of these planets also passed through the asteroid belt. A suggestion that I can therefore offer is that each of these planets was retarded in passing through the mass of the asteroid belt. Could this be? The mass of the asteroid belt does not amount to much, although each of the outer planets would have been in intimate contact with a considerable portion of the asteroids. It might be that there were many more asteroids at one time. This is not unreasonable, since when the asteroid belt was last disturbed it was at a time when four giant planets

made their way through, 5000 years ago. The only other alternative would be to suggest some force which is not in the purview of accepted physics. I'm not about to do that.

Venus and Earth were excluded from the electric forces which moved Jupiter, Saturn, and the Titans. Both Venus and Earth were some considerable distance away from their primaries. A reformed plasmasphere most likely resulted in their exclusion.

Tom Van Flandern would suggest, instead of reformed plasmaspheres, that the gravitational sphere of influence decreased with the addition of a nearby mass. Under this concept too, the Earth and Venus would be released from their duties as satellites.

Having Jupiter approaching Saturn because of an attractive electric field force also clearly delineates the blame. The Palette of Narmer shows the "Bull of Heaven" wrecking the city of the Gods. The *Chilam Balam* is also clear about an immediate contact:

"Then Oxlahun-ti-ku [Saturn] was seized by Bolon-ti-ku [Jupiter]."

"Then [when] Oxlahun-ti-ku [Saturn] was seized, his head was wounded, his face was buffeted, he was spit upon, and he was (thrown) on his back as well."

Obviously, starting with attractive forces, there would have been an immediate charge imbalance, not induced as in all the other situations, and as a result the instant delivery of a continuous lightning bolt. That too is what the *Chilam Balam* says.

There was no intermediate agent, as in the plasmoid of Venus in 2349 BC, which was variously presented as a dragon or an angry goddess. In this case it was Jupiter who was the agent, and clearly identified in Egypt, Mesopotamia, and Mesoamerica. The graphic and verbal descriptions suggest considerable violence. Jupiter was understood as a celestial bull not simply from its looks, but from the apparent impact it had in wrecking the city of the Gods. Jupiter would have looked like an approaching bull with its huge broad-shouldered shape of its lower coma and with a coma as the head (complete with eyes) with horns on top, formed of the chalice-like plumes above the upper magnetic pole.

An estimate of the separation of Jupiter and Saturn would be about 40 planet diameters for each, the most likely radius of their plasmaspheres. (Jupiter's plasmasphere today extends some 40 to 100 planet radiuses from the planet's center -- 2.5 to 4.5 million miles, 4 to 7 million km.) This amounts to about 3 million miles for each on average, and thus a total horizontal separation of about 6 million miles (10 million km) minimum.

The other estimate of a separation distance can be had from the Bible and Vedic references to a bright light flooding Earth day and night for seven days -- which Velikovsky thinks preceded the flood, correctly so, but it was the flood of 3147 BC, not Noah's flood. Isaiah, in a prophetic mood, describes a cataclysm to come as:

"the light of the moon shall be as the light of the sun, and the light of the sun shall be sevenfold, as the light of the seven days...."

-- Isaiah, 30:26

Ronald Knox, however, translates the last line as, "as if the light of seven days were joined in one." Jan Sammer and Velikovsky point to Vedic sources, possibly more accurate Talmudic sources, and the Sumerian *Epic of Gilgamesh*. (<http://www.varchive.org/eclight.htm>). Genesis 7:4 also makes reference to a seven-day delay before the flood.

Notwithstanding the particular translation by Knox and the illusive quality of some of the other sources, the concept of seven days of a very brilliant light before the flood (the flood of 3147 BC), makes sense.

A model immediately comes to mind: On sensing Saturn and the other two large planets electrically, Jupiter would have started to relocate away from the Sun, but still mostly in the forward direction of it travels. The very act of relocating would cause it to start shedding charge to match the changed electric condition of being at a different distance from the Sun. Jupiter would have lit up in glow mode. The coma that developed was three times the diameter of the Sun (it still is today, but in dark mode). As we know from comets, a glow mode coma, even for a very small object, can light up the night skies as brightly as the Sun.

Jupiter would have relocated and would have remained brilliant far past the original location of Saturn (as we know). But for humans it was over as soon as Earth was released from below Saturn. That brought the flood. So to this point in time we can count seven days of travel for Jupiter. Or perhaps less, since the flood might have taken a few days to arrive from the south.

If, as I suggested earlier, Jupiter were located at 0.7 AU, then its orbit would be $\pi * 2 * 0.7 * \text{AU} = 409,000,000 \text{ miles (659,000,000 km)}$, and its year would be 214 days (from $365.24 * \sqrt{.7^3} = 213.9$). The orbital speed would thus be 1,920,187 miles per day (3,090,000 km per day). Assuming a travel velocity no greater than Jupiter's forward orbital speed, in seven days it could have traveled about 14,000,000 miles. The initial attractive force, which changed the direction of travel to some value above a tangent to the original orbit, would have to overcome Jupiter's forward momentum, and would not likely last all that long, and certainly not seven days. As the plasmaspheres reformed, the electric fields of the planets would again be isolated from each other.

First, is the interaction distance reasonable? We can't argue with the time it took to yank Saturn away from Earth. First, 14,000,000 miles (22,500,000 km) is twice what I had suggested earlier in the text as the separation based only on estimates of the sizes of the plasmaspheres of the two planets.

Second, I will assume that both Jupiter and the Saturnian planets would have been subjected to an initial impulse force which probably lasted no longer than minutes.

Third, what we have here is markedly different from the descriptions of other electric field interactions, in that there was no restraining force -- something that in all other cases kept planets from continuing onward after the initial repulsive shock. The restraining effect for a repulsive electric force was always provided by the induced charge, which would provide an attraction to counter the initial repulsion.

So, in this case, Jupiter, Saturn, Neptune, and Uranus were destined to travel forever outward from the Solar System. I would suggest that the eventual restraining effect was provided by the material of the asteroid belt.

Earth stayed behind when Saturn started to move away. At the end of the flood Jupiter was seen with a crescent of sunlight on the planet, seen through its coma, and placed on top of a green mountain, as Noah's ship. It was thus located outside of the orbit of Earth. There is more than one image of Jupiter like this as seen by humans and reported on.

Earth was loosened from the grip of Saturn, for the presence of a planet with more than three times the mass of Saturn would have reduced the gravitational sphere of influence (as defined by Van Flandern) of Saturn. Not only was Earth outside of Saturn's new sphere of influence, but with Saturn speeding away, the

Earth's orbital speed no longer matched. Mercury and Mars remained with Saturn.

The Earth at this time was already on a new path about the Sun, and was experiencing the worldwide flood. Jupiter might have been seen in the daytime, but certainly not for long. As the flood came to an end, in a week or two, Jupiter had already relocated to the south skies, and was receding from Earth and from the Sun. The light of seven days came to an end as Earth moved out of Jupiter's lower plasma plumes -- its mountain.

This type of "collision" would have had a very low probability of ever happening, for although Jupiter and Saturn were on nearly the same average orbit, they had likely fallen into a synchronous relationship which would vary only slowly. The variation in the relationship of the orbits of Jupiter and Saturn would probably be on cycles spanning tens of thousands of years. But at some point in time there was going to be a close call, where the distance between Jupiter and Saturn would become critical. That happened in 3147 BC.

All four of the large planets relocated to a distance from the Sun approximately inversely proportional to their mass, with the exception of Uranus. Nearly the same electric field force was experienced by all the planets (as a diagram of relative positions will indicate), and thus the increase of the orbital distance from the Sun would have been proportional to the inverse of their mass. The exception is Uranus, which should have been relocated to an orbit beyond Neptune, but was not. Uranus's orbit was relocated to an orbit nearer to the Sun than the orbit of Neptune. I'm not sure what might explain that, except perhaps the direction in which the stack of the Saturnian planets was leaning.

If the stack leaned away from the approaching direction of Jupiter, then Uranus would be the most distant from Jupiter when all three planets received their initial attractive shocks, and Uranus would have received a lesser shock (which falls off with the distance). I am assuming here that the force of the electric impulse would have been proportional to the coulomb charge of the planets, and that these in turn would have been a function of their mass, or at least their surface area. This is not quite sufficient to explain the much larger orbit of Neptune -- an additional 1000 million miles beyond Uranus at 1,700 million miles (2,700 million km).

Considering the enormous charge carried by the giant planets, it will become obvious that reforming of the enclosing plasmasphere for the large planets would lock out the smaller planets, so that the smaller planets, enclosed in their

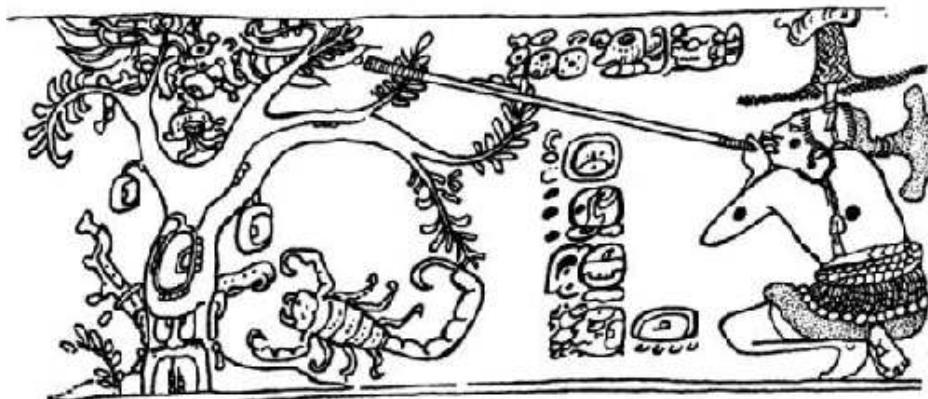
own newly configured plasmaspheres, never experienced the electric field force of Jupiter or Saturn and the Titans. Otherwise Earth would have been tossed out of the Solar System.

The tiny planet Earth, the furthest from the Saturnian group, remained on an inner orbit. Venus was torn away (escaped) somehow from Saturn and Neptune. Venus may have been excluded simply because Venus was on an orbit far above and outside of the rings of Saturn, and presumably not located between Jupiter and Neptune at the moment the plasmaspheres touched. From "flood reports" from Greece, Venus seems to have rounded the globe of Jupiter ("his skull"), still located on the night side of Earth, before heading into an orbit around the Sun with a period nearly identical to the orbit of Earth (as would be expected).

Mercury and Mars were carried along by Saturn as if they were satellites, which in effect they were. Mars and Mercury remained with Saturn and were not released until some 80 years later, when Saturn entered the asteroid belt and reconfigured its plasmasphere, making it much smaller. [\[note 4\]](#)

Axial Inclination of Earth

Earth would relocate immediately to a new elliptical orbit which would have the Sun as one of its centers (nodal points). The start of this orbit -- the location of the release -- constituted the aphelion of the orbit (on the seasonal equivalent day of May 28th, according to the Maya "blowgunner" pot) and is the location Earth would return to during its circuit around the Sun until the orbit changed again in 2349 BC. At that time the equinox was still 15 days earlier than today, so that the Pleiades become the icon of New Year celebrations.



[Image: "Done by Hun-Ahau; on 1-Ahau 3-Kankin he entered the sky, Itzam-Yeh." After David Freidel and Linda Schele "Maya Cosmos" (1993).]

Today the aphelion falls in early July, somewhere around July 4th to July 6th (the dates vary on our calendar). A change of 10 or 15 degrees in the location of the aphelion (for the year 685 BC) was suggested by Rose and Vaughan in 1994. That is not the 15 day advance in the equinox, counting a degree as very close to a day, which would also have moved the solstice dates by an equal amount.

In terms of today's calendar, the aphelion moved a total of 39 days: 4 in May, 30 in June, and 5 in July. On the basis of the changes in 685 BC, the original aphelion in 686 BC can be placed at June 20th, on today's calendar (16 days earlier). This is the solstice, to within a day (it varies with leap year adjustments). The remaining difference of 24 days (May 28th to June 20th, inclusive) has to represent precession of the second nodal point, changes in the number of days in the year, or both. Changes in the days of the year, using $225/365$ as a factor, account for another 14.8 days.

Most likely a date of May 28th is correct, even though I am still 9 days short. It would be a matter of retrocalculating on the basis of the calendar, to find what day would match the location of the setting sun -- assuming that the location of the setting sun had been accurately preserved by the Olmecs and Maya for some 5000 years.

The seasonal date of May 28th is how both the classical era Maya as well as archaeologists calculated from an unadjusted Long Count. The year of 3148 BC might be a coincidence (although I doubt that). What is important is that 1-Ahau 3-Kankin can be translated to a sunset location of 23 degrees above west if we assume this was determined for a latitude of 19 degrees north which is sort of the midpoint of Maya occupation.

The question then becomes, what would be the latitude for a solstice sunset location of 23 degrees north of west? Today's solstice of June 21 can safely be used to calculate this, but it would have to be set for a different axial inclination of the Earth. Elsewhere I have determined that a value of 25.2 degrees would be reasonable, after the Australian astronomer G.F. Dodwell.

The axial inclination of 25.2, however, is Dodwell's weakest data point, and it would be acceptable to modify this somewhat. Dodwell assumes that the Earth was jolted in 2550 BC or so, and corrected itself over time. His measure was taken from a pylon at Karnac, built after 2549 BC. My take is that until 1492 BC the initial inclination of the Earth's axis had remained the same.

I am suggesting 25.0 degrees rather than 25.2 degrees. At 25.0 degrees, the solstitial sunset would be 23 degrees north of west for a latitude of 1 degree north. It could be south also; but at any rate it is a location near the equator. This could be inland Venezuela as the earlier location for the Olmecs (as I have suggested), or Columbia or Equador. [\[note 5\]](#)

Outer Planet Orbits

The current inclinations of the orbits of Jupiter and the other outer planets, in degrees above or below the equator of the Sun, should reflect their interaction in 3147 BC. The current inclinations are the retained history of the starting point of the "collision" of 3147 BC at 0.70 AU from the Sun. This is a very simple and obvious consideration which has not been broached by any researcher in 60 years.

There would be no reason for the inclination of the orbits to change, although it remains to be suggested that the orbits might "flatten" over a long period of time under the gravitational influence of the other planets. But the angle of the eventual orbit would mainly have been determined by the angle each of the larger planets made with the equatorial of the Sun at the location where they were all coincident in 3147 BC. We should thus be able to get a glimpse of the vertical separation distances between the larger (outer) planets in 3147 BC.

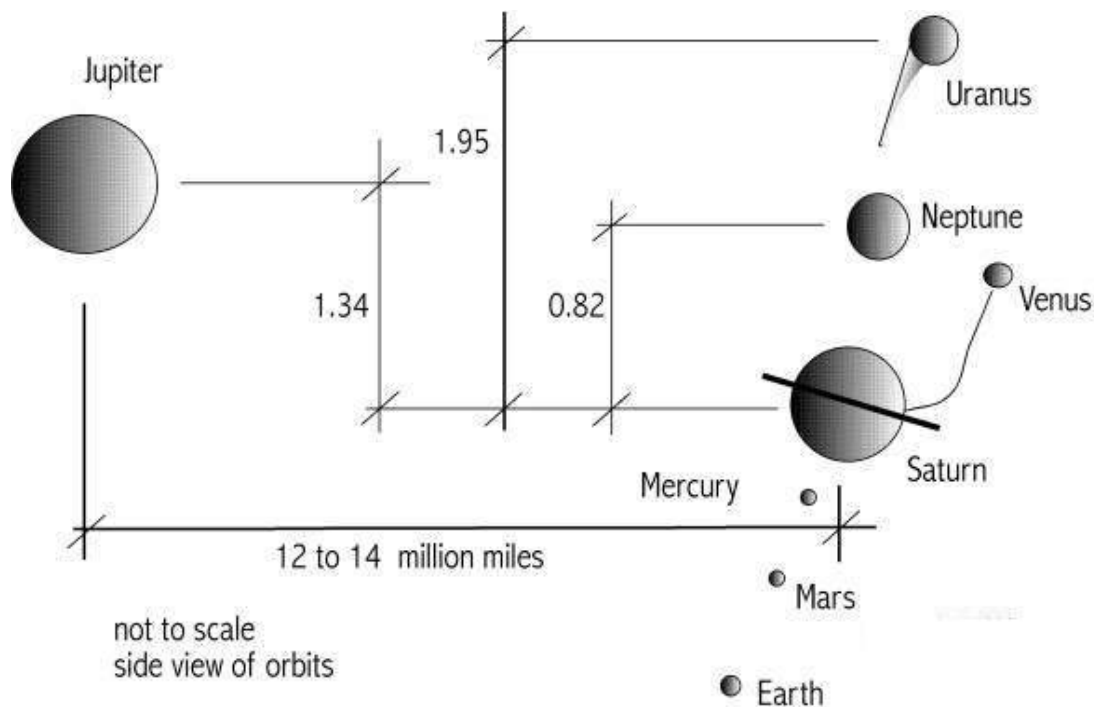
Although I have confidence in determining the vertical separation of the outer planets, I have somewhat less confidence that we could extract relevant information about the inner planets, for they have been released from the grip of Saturn at different times and would thus have established their new orbits (with the Sun at one of the centers of the ellipses of the new orbits) at an unknown location other than 0.70 AU.

The chart below shows the vertical distances between the four large planets in 3147 BC. The vertical separation between planets assumes all were located at 0.7 AU from the Sun. The inner planets will be considered separately, below. [\[note 6\]](#)

object	inclination of orbit to ecliptic [degrees]	inclination of orbit to Sun's equator [degrees]	vertical separation of adjacent planets [million miles] as shown
--------	---	--	---

Uranus	0.77	6.23	1.95 (above Saturn)
Jupiter	1.31	5.67	1.34 (above Saturn)
Neptune	1.77	5.23	0.82 (above Saturn)
Saturn	2.49	4.51	-1.34 (below Jupiter)

Predictably, Uranus is at a considerable distance above Saturn, nearly two million miles. Saturn in turn is below the "level" of Jupiter, by over a million miles. Thus Earth would have been even lower and Jupiter would initially have been seen from Earth from a low angle. As described in the various flood legends, the crescent of the Sun's light would have been seen on the lower portion of Jupiter, understood as a "ship" moored to a "mountain" of plasma discharging from the south pole of Jupiter.



Separation in million miles,
Jupiter at 0.7 AU, 3147 BC

Neptune, which definitely is a Saturnian planet, can be fit into this configuration. We do not know anything of this planet from mythology (except for references in the Quiche *Popol Vuh*). The name for the planet was selected in AD 1846 to match classical mythology as being one of the Titans banished by Zeus (Jupiter), as related by Hesiod. (Uranus was similarly named, but the planet certainly is not the Uranus "Father Sky" who was the father of Kronos, Saturn.)

Although it might turn out that Neptune could be associated with one of the Gods or Goddesses of antiquity, it is unlikely that Neptune was ever seen (although recounted by the *Popol Vuh*), since it would have been directly above Saturn and certainly was close enough, 0.8 million miles (1.3 million km). Saturn is twice the diameter of Neptune. Saturn and its rings would have easily obscured Neptune.

The reason for considering the possibility that Neptune had hovered above Saturn before 3147 BC is that Neptune is today found in the extreme reaches of space, in fact, at 32 AU. Additionally, both in the earlier Gravettian period of the Upper Paleolithic (28,000 to 24,000 ya) and again after about 5600 BC, the figurines display distinct breasts above the large belly and butt. With Uranus forming the head, and Saturn the belly or body, the location of an additional planet directly above Saturn would be required to form the breasts, probably as an outline of its equatorial toroidal plasma belt. Neptune is larger than Uranus.

The most convincing evidence comes from the Magdalenian period of the Upper Paleolithic, 17,000 to 14,000 years ago, when the Venus Figurines, from a period 10,000 years earlier, become strangely elongated and hardly realistic looking. Elsewhere I have postulated that at about this time Earth had visually risen in its orbital latitude (or Saturn was on a part of its orbit more inclined to the Sun), so that the figure of the Saturnian planets was no longer foreshortened into the typically squat Venus Figurines of the Aurignacian and Gravettian periods of 30,000 to 24,000 year ago. Rather than dismiss the sculptors of this era as incompetent, as many archaeologists do, I suggest that we are being presented with a realistic depiction from a point of view where the orbit of Earth is at nearly the same level as the Saturnian planets. Without too much effort the sculptures reveal four or five separate globes connected with an enclosing plasma. The sculptures are being forced to appear as an image of a woman, because that had been the long-standing tradition.

... outer planet spin rates

I have assumed (earlier) that the electric and gravitational interaction in 3147 BC slowed the travel of each of the large planets to a value which would correspond to the new (slower) orbital speed of each of these planets at their eventual location far from the Sun.

Of course we have to ask, if both Jupiter and Saturn slowed to a forward speed which they would have at their remote locations, what happened to the kinetic

energy and rotational momentum?

The repulsive electric interaction, which altered the forward speed of the planets, was short lived. Likewise the electric arcing which were involved in the near collision must have been enormous, but these simply cannot account for the energy exchanges which were involved. Plasma exchanges, even in arc mode, are always constrained by time and are self-limiting.

What then happened to the kinetic energy and the potential energy in the collision of 3147 BC? The simplest answer might be to suggest that the orbital rotational momentum which was lost by each of the planets was translated to spin rotational momentum. In fact, both Jupiter and Saturn spin at inordinately high rates for their size (9 and 10 hours).

What I have suggested earlier is that Saturn revolved at about 24 hours before 3147 BC, so that from Earth, below its south pole, Saturn would have stood still. This suggestion could be extended to the other outer planets also, that is, that each of them in relocating to a larger orbit (which reduced orbital rotational momentum) increased their spin rate (which increased the rotational momentum of spin).

On strictly mechanical terms, the conservation of rotational momentum will not allow this unless the planet somehow gained mass, increased in size, or a force was applied. That force was electric. I suspect, therefore, that, before the collision, Jupiter, Saturn, Neptune, and Uranus, rotated about their individual axes at a lower rate than they do today. [\[note 7\]](#)

New Inner Planet Orbits

The inner planets did not relocate to the far reaches of space, but, released from the gravitational grip of Saturn, immediately started on new orbits with the Sun as one of the centers of their new orbits. The orbital inclinations shown in the chart below are calculated as before. From this it appears that Mercury and Venus started from a location above Saturn. Mars and Earth, however, start from below Saturn, as per my original assumptions. Earth started from a location furthest below at 2.8 million miles (4.5 million km) distance from Saturn, also as expected. Mars started from a location 730 thousand miles (1,175 thousand km) below Saturn. However, see the caveat, below.

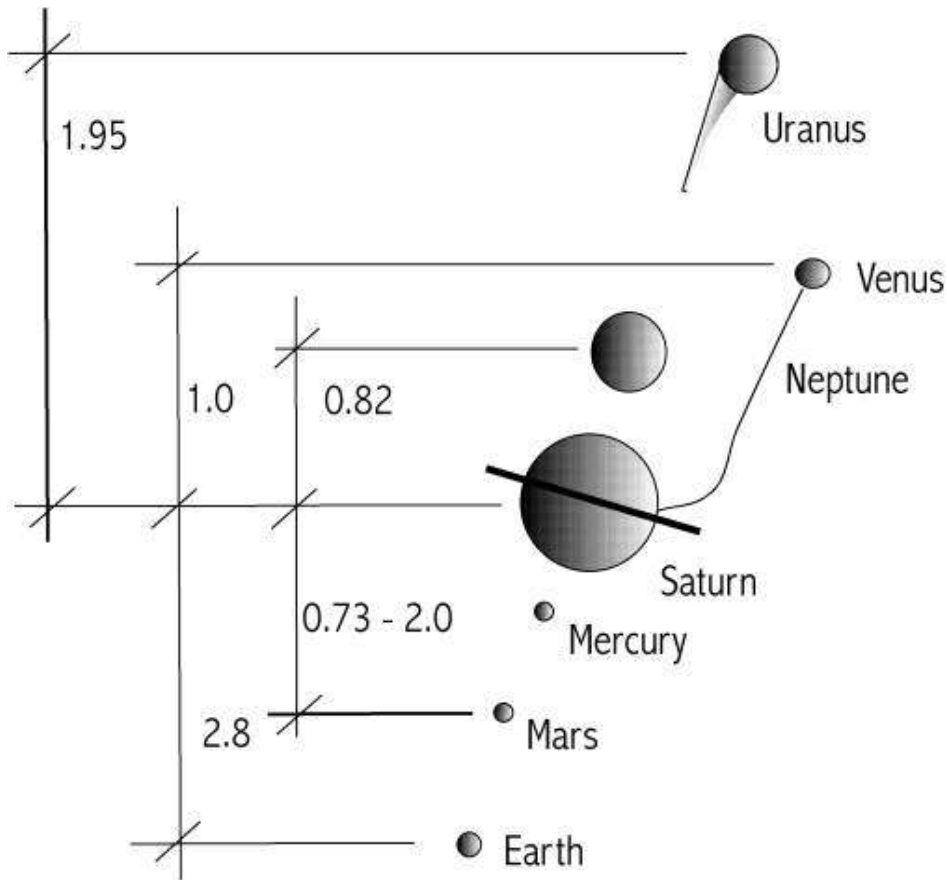
What the chart shows is that Venus would have had a location well above Saturn, and in fact close to the inclination of Jupiter (as also confirmed by "mythology"). The data for Mercury is suspect. It looks to be very far above Saturn, although I have suggested that Mercury was located directly below Saturn. The compressive shock between Earth and Mercury in 686 BC not only radically changed the orbit of Mercury, but must have changed the orbital inclination to the equator of the Sun as well. [\[note 8\]](#)

object	inclination of orbit to the ecliptic [degrees]	inclination of orbit to Sun's equator [degrees]	vertical separation from Saturn [million miles]
Mercury	7.0	0.00	-5.13 (sb below)
Venus	3.4	3.60	-1.03 (above)
Saturn	2.49	4.51	---
Mars	1.85	5.15	0.73 (below) **
Earth	0.0	7.00	2.83 (below)
** may be 2.0 or more, see text			

The terms "above" and "below," in the chart above, were selected on the basis of today's angular separation. The location of Mercury is incorrect; it should have been below Saturn. Details for the Earth's contact with Mercury are shown further below.

The seven-degree angle that the Earth's orbit has (today) to the Sun's equator, the largest of any planet, speaks to the fact that Earth was furthest removed from the vertical location of the other planets. Were we lucky?

The distance of 2,830,000 miles (4,557,000 km), shown in the chart above, between Earth and Saturn differs significantly from my first estimate (not shown in these texts) which placed Earth a half million miles below Saturn, so that the disk of Saturn would subtend ten degrees, although with a coma the "disk" might have been larger. The earlier estimate was based on the slimmest of data. It should be expected, however, as I have also mentioned earlier, that Earth should have slowly distanced itself from Saturn as the coulomb charge of Earth increased.

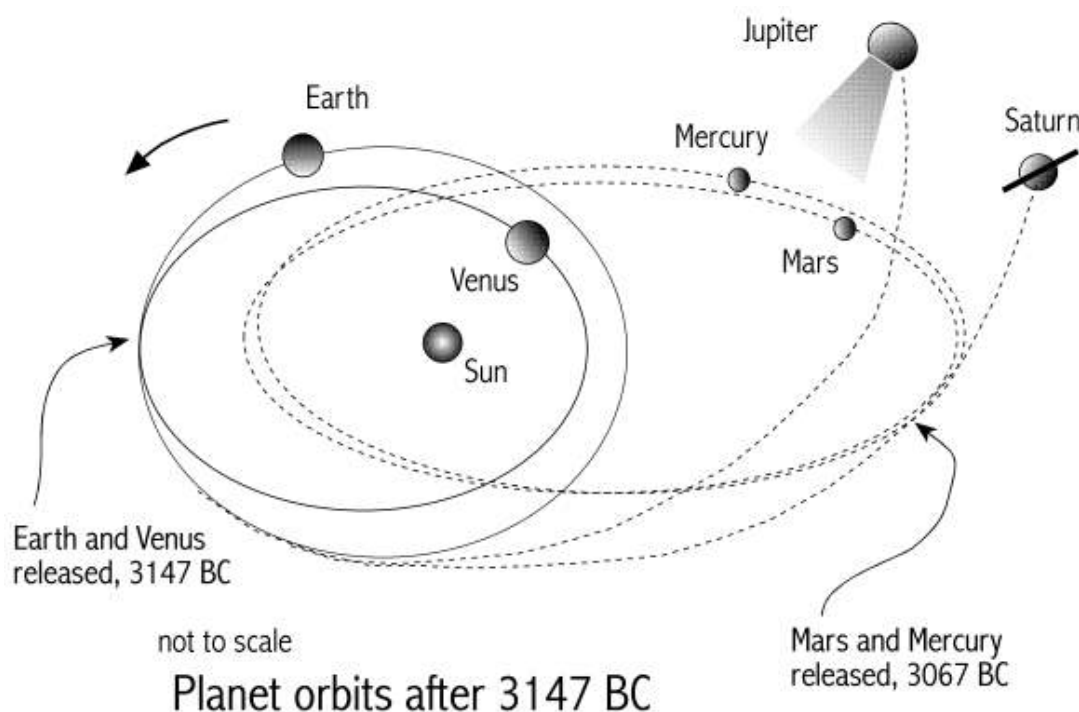


Separation in million miles, 3147 BC
not to scale

For Earth, perhaps a distance of 2.8 million miles below Saturn is not unexpected. The White Crown of Upper Egypt seems to depict this situation. The bulb at the top of the bowling-pin shape, which would be Saturn (but could also be Mercury), has been reduced to a size smaller than Mars (where I suspect Mars is depicted as the pharaoh's head).

At a distance of 2.8 million miles, Saturn would look three times as large as the Moon does today. Mercury, located one quarter to a half million miles (400 thousand to 800 thousand km) below Saturn, would have looked considerably larger with its atmosphere and coma. Mars was much further from Saturn and would just become a speck except when it lowered to earth. We cannot tell too much from the depiction of the Red and White Crowns, however, because these images probably depict Mars at its closest approach to Earth in the period well before 3147 BC. [\[note 9\]](#)

The location of Earth with respect to Jupiter can also be verified from the description of Noah's Ark. The crescent seen on the bottom of Jupiter looked like a boat or ship, probably equal to the first quarter of the Moon (but at the bottom of the sphere). For this the Earth would have to be a considerable distance vertically below and at an inclination of perhaps 45 degrees. Thus Earth might have very well have been located some 3 million miles (5 million km) below Jupiter and 3 million miles away horizontally.



The distance between Saturn and Mars, listed in the chart above, also is not correct. If Mars and Mercury were carried off by Saturn from the "collision" location of 3147 BC, then the vertical separation should be calculated for a distance from the Sun greater than 0.7 AU. If we assume that these two planets were not released until the edge of the Asteroid Belt was reached, then a distance to the Sun of maybe 2.0 AU would be more appropriate. That would place Mars about 2 million miles (3.25 million km) below Saturn at the time of the delayed release. The same calculation for Mercury does not result in a sensible figure. [\[note 10\]](#)

... coincident orbits

As Saturn approached Jupiter, with Venus in orbit above Saturn and Mercury, Mars, and Earth some distance below, the small planets might have experienced

the additional gravitational attraction of Jupiter as well as an electric repulsion or attraction (when the plasmaspheres touched). The resulting interactions would have been somewhat unpredictable, and any number of things might have happened. But in fact it seems that the electric field of Jupiter was never experienced by the four small planets. It would, at any rate, have completely destroyed the Earth. The gravitational attraction of the Sun prevailed for both Earth and Venus; both at once assumed new orbits around the Sun; Mars and Mercury followed 80 years later.

This suggests that Saturn's plasmasphere almost instantaneously reshaped to account for the contact with Jupiter's plasmasphere, leaving the distant planets Venus and Earth free from the electric fields and the electric interactions, and thus subject only to the gravitational force of the Sun.

Mars and Mercury, closer to Saturn, seem to have remained within Saturn's plasmasphere, to be released at a later date, probably when Saturn entered the asteroid belt some 80 years later (at which time its plasmasphere would have contracted). Isis hides the newborn Horus among the bulrushes of the swamp. The swamp is the Absu. [\[note 11\]](#)

Uranus moved to a larger orbit immediately, initially moving to behind Jupiter. On the second orbit of Earth around the Sun after the flood, the raven is seen behind Jupiter, seeming to move closer to Jupiter's "mountain" as the Earth approached the location of the planet (in the night sky), and then seen moving away again as Earth passed Jupiter. *"And he [Noah] sent forth a raven, which went to and fro, until the waters were dried up from off the earth."* The raven is also mentioned in the Sumerian flood story. [\[note 12\]](#)

Having shot past the point of the collision, the Earth moved up from its previous orbit below the Sun's equator, making the Sun again one of the centers of their elliptical orbits, in effect changing the inclination of its orbit to the Sun's equatorial. Venus would settle on an orbit nearly duplicating the prior orbit of Saturn, and thus end up with a perihelion close to the Sun, probably as close as Saturn had come in the previous era.

Earth and Venus would have had their aphelion at the location of the "collision" between Saturn and Jupiter -- 0.72 AU or 0.79 AU -- with Venus, because it started above and away from Saturn, having its furthest location from the Sun at a somewhat greater distance than Earth. This would result in having the orbit of Venus extend beyond the orbit of Earth in the future.

Mars and Mercury ended up with orbits of the greatest aphelion, perhaps two AU or more, since apparently they were released later, when Saturn had moved into the asteroid belt, and probably within a short time of each other. I suspect, however, that the planets were released simultaneously. Thus Mars assumed the largest orbit, and, apparently overran the orbit of Earth, periodically coming very close to Earth in the process at latitudes of 30 or 40 degrees north. Mercury also crossed over Earth's orbit, and apparently got close to the earth's surface only in the northern hemisphere at 50 to 60 degrees latitude.

This suggests, of course, that these two planets were released from Saturn as a moment directly after Saturn's tilted orbit crossed the Sun's equator. Only that would make sense of the future close passes made by Mars: it was traveling on an orbit near the Sun's equator. That also makes sense of the fact that Mars only came close to Earth at the quinoxes when the Earth crossed the Sun's equator.

Mercury, originally some million miles or more above Mars, would progressively shorten the separation between Mars and Mercury as it neared the Sun's equator. At the location of Earth from the Sun, Mercury intersected the Earth's orbit at a location only a few thousand miles further north along Earth's surface.

We have what seems like records of the sightings of these two planets near Earth in the Palermo Stone, and in the lists of the names of the pharaohs of two dynasties in Egypt, and the list of Kings at Kish in Mesopotamia, but nothing much of a record of destructive interactions, especially for Mercury, except some mention by Manetho. This is certainly also true for the periods of 1100 years into the future, at the time of the destruction of Sodom and Gomorrah, and 2200 years in the future, the destructions of the 8th and 7th century BC. Even for the destructions of the 8th century BC we know more from archaeology than from any contemporaneous records. There were few people left alive to record the destructions.

It seems likely that Mercury showed up repeatedly near Earth, as the precession of the orbits of these two planets completed an 1100-year turn around the Sun. Nabu (Mercury) became a very popular name in about 2000 BC.

What is being described here is based on later interactions of the inner planets, observations which have come down to us from remote antiquity, plus the facts we currently have at hand, which include the present conditions of the Solar System.

"He also sent forth a dove from him, to see if the waters were abated from the face of the ground." Venus nearly followed the old orbit of Saturn around the Sun, but from a location somewhat above Saturn in 3147 BC. The orbit of Venus is today inclined about 3.61 degrees to the equatorial of the Sun, the second least inclination (after Mercury at zero degrees). Saturn's orbit is inclined at 4.51 degrees to the Sun's equator, the third least in orbital inclination.

The mythology of Greece holds that Venus was "born" from the "skull" of Zeus (Jupiter). This was seen on the first circuit of the Earth on its new orbit around the Sun. To the Greeks the first sight of Venus was as it first appeared from behind the globe (the skull) of Jupiter -- rather than from behind the mountainous outpouring of plasma at its south pole which was understood as his body or garment. [\[note 13\]](#)

The dove returned to the ark on the mountain, as seen from Earth. After the second circuit around the Sun the dove returned with a green branch -- Venus had developed a green cometary tail of ionized Hydrogen gas. On the third orbit the dove flew out again but did not return. Earth and Venus had relocated on their orbits so that Venus could no longer be seen as an outer planet. At least, that is my opinion as to what happened.

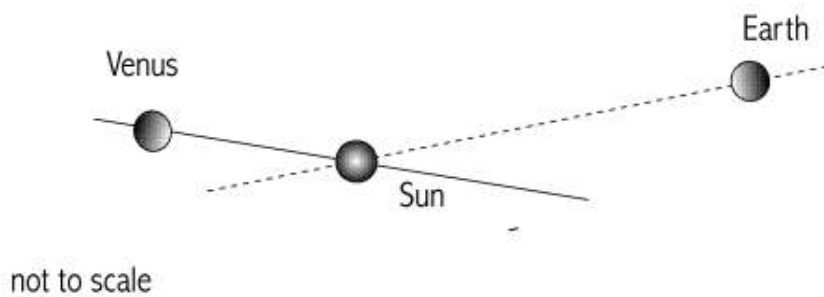
Mesopotamian "flood mythology" mentions that a swallow was also released to test the waters. My first thought was that this might have been Mercury, but Mercury was not available directly after the flood. Mercury was traveling with Saturn, and only appeared 80 years later.

Earth would start to orbit the Sun with an inclination of seven degrees to the equator of the Sun. This was determined by how far below the other planets Earth was located in 3147 BC. As I have demonstrated, the separation between Earth and the other planets can be determined from the current orbital inclination to the equator of the Sun. Once a planet starts to circle the Sun there is no urgency or reason to change its inclination, except through the minute periodic gravitational attraction of other planets.

Plasmasphere Interactions

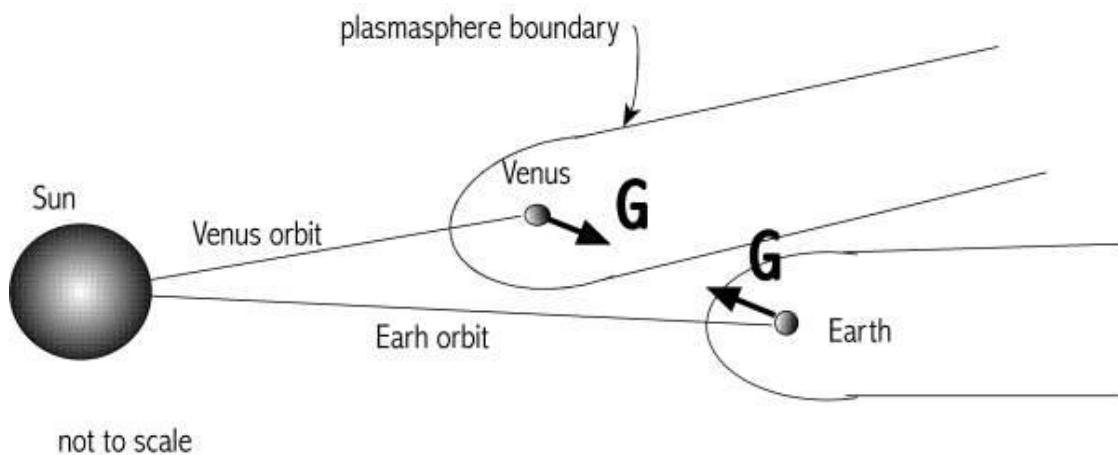
A plasmasphere tail has to "strike" the plasmasphere of another planet to make electrical contact. With the planets all orbiting at different periods and at different inclinations to the ecliptic, this would be a very infrequent event, and

would only happen when two planets were both in line with the Sun -- thus at the equinox location of both planets.



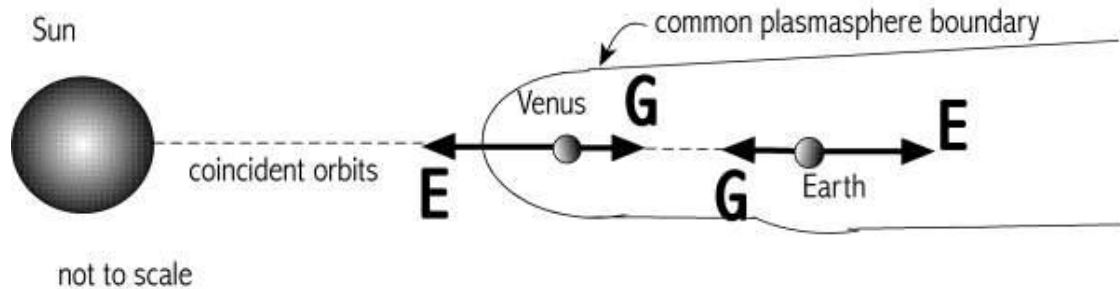
Side View, Orbits of Inner Planets, Showing Overlap of Orbits at Equinox

The interior of the plasmasphere tail is the medium for electric forces, but the edges (the double layer) of the tubular tail are more likely to be the conduit in a contact involving an arc.



Planet Plasmaspheres

Gravitational effects increase and decrease with the distance between planets, and are sensed past plasmasphere boundaries. Electric forces are experienced only within two plasmaspheres after they touch and merge, and there is a line of sight between the two planets. It is these sudden forces which were recorded as planet shocks of antiquity. Examples of shock damage below.



Planet Plasmaspheres

Since all Solar System planets present themselves as electrically negative, the force would be repulsive. The start of the interaction would be followed by a rapid decline -- as one of the planets induced an opposite charge in the facing surface of the other. With the added induced charge the voltage difference between the two planets would increase rapidly, and it is this which will cause electric arcs to travel from one to the other.

The difference in the electric potential between the planets would cause attempts at charge equalization -- an electric arc (lightning) would strike from one planet to the other. The lightning strikes, however, would be a secondary action compared to the initial repulsive forces. Also, the lightning would take time to travel, for it is a physical transfer of charged particles. When traveling millions of miles it might be seen approaching Earth.

All interaction would eventually stop because both planets continue in their travel around the Sun and would pass each other -- the inner planet traveling faster. The electric field interactions would end as the individual plasmaspheres of the two planets would separate and reform.

Gyroscopic Reaction

The Earth's axis would twist if the initial jolt were delivered off-center to the center of the Earth (above or below the equator). The wrenching of a planetary axis would exhibit a sudden onset in response to the shock, and then start to swing in a circle as the torque of a gyroscopic reaction sets in as a response. (This is explained further below.) The twisting motion of the reaction torque would decline as the applied force decreased and then would slow but would continue to twist the polar axis in the direction of a correction.

The axis would be twisted, but the inclination of the axis would return to where it started from, for the reaction torque would decrease and cease as the axis again approached its initial location (where it initially pointed to in the dome of the stars). The order of the seasons might change, but only temporarily. The energy of the impact would be dissipated in heat, in the relocation of the planet to a new orbit, and in a change in rotational speed.

One would wonder why electric field interactions between the inner planets were not more frequent. It depends on a number of factors which are listed below. I'll use this listing also to suggest the mechanics of the interactions, and explain the reaction torques.

1. Although the tails of the plasmaspheres of planets extend millions of miles away from the Sun (30,000,000 miles for Venus today, 40,000,000 miles for Earth), they are in effect blind. They remain blind to the electric charge of any other planets, and do not even "see" the plasmaspheres of other planets they may be nearing.
2. Plasmasphere tails extend away from the Sun, in the direction of the decreasing electric field, and in the past were seen in glow mode (as most comet tails are still seen so). Today the plasmaspheres of all the planets are in dark mode. Only if two planets are directly in line with the Sun could the plasmasphere of an inner planet reach the plasmasphere of an outer planet.

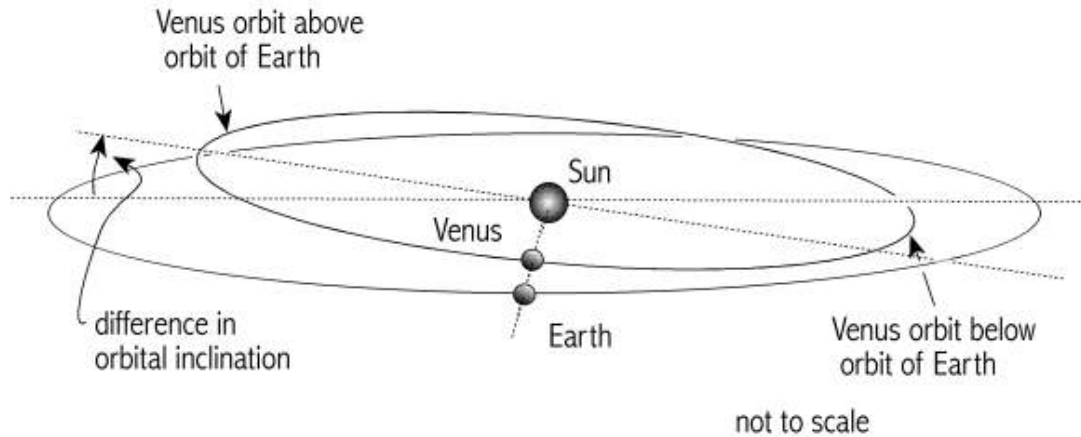
- Venus, because it has an atmosphere, would have had a large and bright coma, and two distinct tails. One consisting of ejected (repelled) particulate matter, the other composed only of ions in glow mode at the edge of a plasmasphere tube. The first tail (of ejected material) might curve because the material is left behind after being repelled from Venus. It would also likely split as the charged particles are repelled from each other.

The other tail is defined by the electric field of Venus and the Sun, and is straight, like a shadow. The ion plasma tail can redefine itself in seconds, even as Venus curves away on its orbital travels around the Sun.

- Mars, without an atmosphere, had a very closely held coma, perhaps composed only of dust, with a tail composed of ions and electrons

borrowed from the Solar Wind. The records of Mesoamerica, that twice (out of four close approaches) Mars was seen approaching Earth as a "mighty demon bat" (after 747 BC), suggests that perhaps the dust-envelope extended into space away from the planet and was warped by the Earth's magnetic field as Mars entered the Earth's plasmasphere.

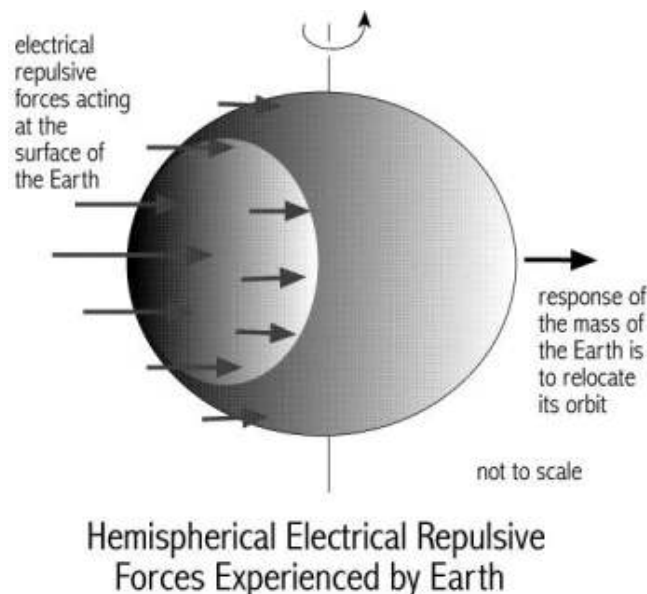
- Velikovsky, in *Worlds in Collision*, has collected similar images from many sources, depicting Mars as a sword, a wolf, and other shapes, also for the 8th and 7th centuries BC.
 - The plasmaspheres of planets on adjacent orbits will not make contact very frequently. Today the Earth and Venus line up exactly with the disk of the Sun only four times every 243 years (technically known as a "transit event"). These four transits are grouped in two pairs (with each pair separated by 8 years), at 129.5- and 113.5-year intervals.
 - The reason for this should be obvious: since all the planetary orbits are tilted at diverse angles to the equatorial of the Sun (the orbital inclination), and planets travel at different speeds, the likelihood of an alignment of two planets and the Sun is low.
 - In antiquity, the period at which Earth and Venus lined up with the Sun seems to have been 52 solar years from 2349 BC through 2193 BC, and near 48 or 50 years at other times. The so-called "52-year period" is discussed separately below.
 - This suggests that the orbit of Venus changed very little over the complete span of all the interactions -- during the course of some 3000 solar years. In fact, from various estimates of the orbital period of Venus derived from Mesoamerican calendrical sources, it seems the period of the orbit of Venus changed by only two days. I'll address this peculiarity below.
3. The plasmasphere tail of a planet would completely bypass another planet if the line of sight from the Sun passed above or below the other planet, even though the plasmaspheres of the two planets come relatively close to each other. For Earth the "closeness" would be measured at about 30 planet diameters, 240,000 miles (386,000 km).



Earth and Venus in line with the Sun

4. If the edge of the plasmasphere tail brushed the plasmasphere of another planet it would probably have little effect, although there might be an exchange of the ions constituting the double layer, which might be detected by either planet. A direct hit of repulsive electric field force might be avoided, but lightning strikes could still happen via the double layer of the plasmaspheres. [\[note 14\]](#)
5. If the portion of the main body of the plasmasphere tail runs into the plasmasphere of another planet there will be a sudden realignment of the two plasmasphere surfaces so that the two planets become enclosed within a single plasmasphere. Of course "sudden" is relative, for it involves the selective separation of ionized particles. It may take a minute.
 - After two plasmaspheres have merged, and there is a line of sight between the surfaces of the two planets, each planet becomes aware of the electric field of the other planet and both will experience the physical shock of a sudden repulsive electric force. (All planets experience each other as negatively charged, except Saturn.)
 - This electric force is not to be neglected, especially since it will be experienced suddenly and at full force. The two shocks experienced by Earth in 747 BC and 686 BC were of this nature. It could jog a planet to a new orbit (as in 747 BC), for it would always be experienced at a right angle to the orbital path. The two planets would be physically propelled away from each other. (But this is not always the case; see "686 BC" below.)

- A stupendous seismic shock would be experienced which would travel around the Earth. At the location facing the other planet, the crust would be depressed, uplifting adjacent surrounding areas. This can be seen at the Caloris basin of Mercury, which extends over about one third of a hemisphere (see image, further below). As the Earth continued to rotate, the depression would move toward the southwest as the Earth tilted away from the impact (for the northern hemisphere) and continued to rotate to the east. The force of the impact would cease as a change in the charge was accomplished through induction. The force on the crust (on one hemisphere) would transmit to the mass of the Earth, moving it to a different orbit away from the Sun.
- Gravity acts throughout the whole of a mass. The effects can be modeled as if the force of gravity acts through a single point at the center of the Earth. An external force can similarly be modeled as if it acts through the center of the earth, but located along the central spin axis away from the center. This force, even if it moves a planet, will have no effect on the Earth's spin.



- The actual electric field force is applied to the crust of the Earth (not to the interior), and on the portion facing the other planet. The other hemisphere of the Earth would be in the shadow of the electric field of the Earth and would not experience an electric field force from an exterior object. The impacting surface force would, of course, be transmitted physically to the whole Earth.

- The Caloris basin of Mercury and the Orientale basin of the Moon are both circular because Mercury and the Moon did not rotate very fast when they were hit, although another likely cause for the circularity of the impact basins is that the duration of the forces was very brief.
- The depressions on Earth, if they are found, would exhibit a semicircle of raised mountains on the western or southwestern side and flat region on the other side. The flat region would indicate the direction of travel of the Earth's surface at the moment the repulsive force was applied or directly after. The application of the exterior force would have traveled in the opposite direction -- in the direction of the semicircle of shoved-over mountains. The lack of mountains at the eastern edge is the result of the Earth's surface moving away from the location of the impact, due to the rotation of the Earth and the tilting of the Earth's spin axis away from the point of impact -- a combination of the external force, the gyroscopic reaction, and the rotation of the Earth. I'll detail the reaction torque below.
- There should be four of these semi-circular areas dating from the last 4000 years. These should be recognized as being recent, that is, represent surface scarring which shows none of the marks of millions of years of weathering. There should be two very large impact basins from the passage of Venus in 2349 and 2193 BC. The contact of 1492 BC was made in the Pacific and left no mark on the land. [\[note 15\]](#)

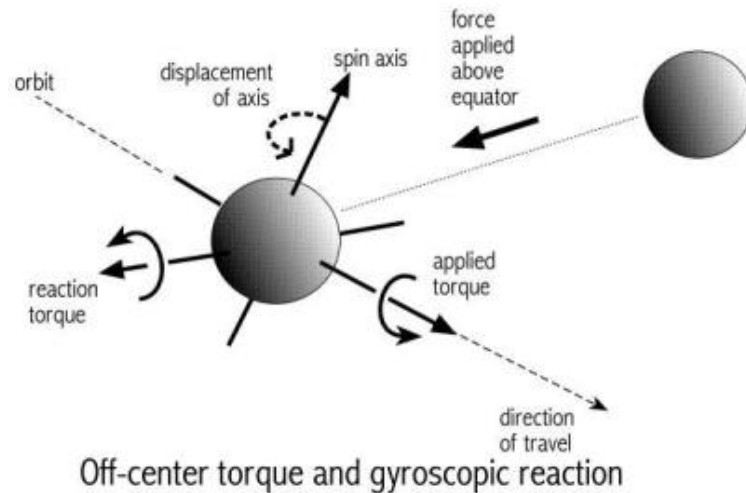


[Image: View over Alabama. Google Maps, courtesy of Dennis Cox, <http://sites.google.com/site/dragonstormproject/>]

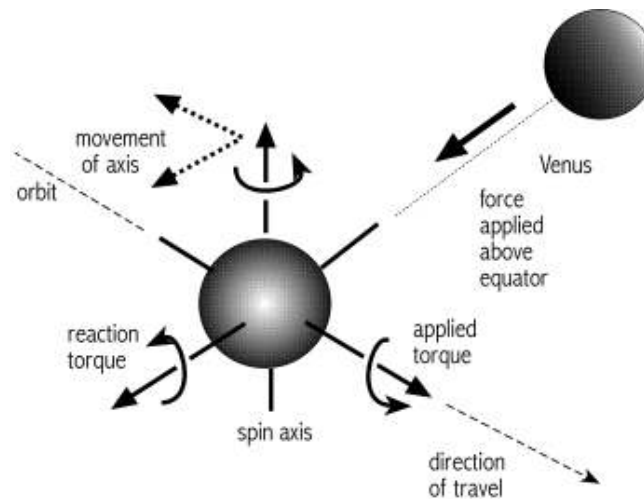
- A second set of marks would represent the contact with Mars in 747 BC and with Mercury in 686 BC. The events by Mars and Mercury would cause much smaller impressions. The impact of 686 BC by Mercury can be generally located from "legendary" observations of North American Indians, and placed with considerable certainty in Northern Alabama. There will be no tribes indigenous to this area which would be able to tell tales of such events. There will be much later earthquakes just west of this area.
- At first I suspected the mark of the 747 BC event to be located in Northern Mexico, just south of the Mexico-US border, south of Manuel Benavides, as suggested by Dennis Cox. The location of the semi-circle of raised mountains in this case points away in the "wrong" direction from the center of the impact basin -- in an arc from

north to east. The "wrong location" of the crushed and shoved-over mountains is difficult to justify as an impact location. Additionally, the size of the basin seems far too small (the circle in this image is only 17 miles, 27 km, in diameter).

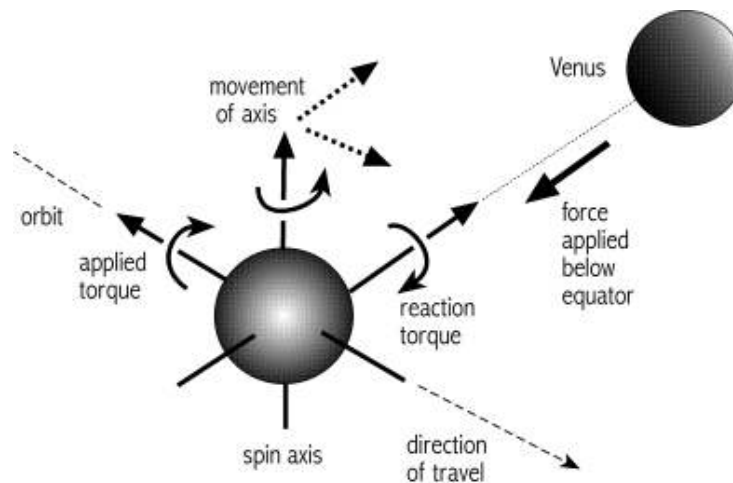
- Cox attributes the burn damage to a "comet" exploding above the surface, as is proper to do among mainstream academics, and a lead followed by Cox. I would suggest arcing from Mars during the 8th and 7th century BC. The burn damage looks to be a cathode burn mark from a massive electric arc. The mountain ridges which show up at the northeast edge of the 17-mile-diameter circular mark are more or less coincidental. They are not shoved-over, but only molten.
 - There is additional similar large scale burn damage further north of this location, pointed up by Michael Steinbacher in a paper "A new Approach to Mountain Formation" (in *Proceedings of the Natural Philosophy Alliance* Volume 8, 2011), which is not about mountain building as much as it is about the melting and burn damage of canyon edges in the southwest of the USA. The latitude is the same as that of the passages of Mars over the Middle East. This does not, however, constitute an impact area like what we are looking for.
 - At this point I do not know where the impact of 747 BC ought to be placed.
6. The force acting on one hemisphere would represent an unbalanced force if there was any misalignment with the other planet, and the force was experienced above or below the equator, that is, either in the northern or in the southern hemisphere.
- This will be recognized as an externally applied torque to the spinning Earth. The reaction to an external torque is a twist (a reaction torque) with an axis at a right angles to both the spin axis and axis of the applied external torque. This is thus an interaction between **three** vectors.



- **First:** The spin axis of the Earth may be considered the first of the three rotational vectors. It points in the "up" direction, and the spin is counterclockwise around this axis.
 - **Second:** An off-center force (shown as applied above the equator in the sketch above) applied from the direction of the Sun (the direction of an inner planet) would present a rotation about an axis defining the forward motion of Earth on its orbit. This is the second vector. In this example, it would attempt to rotate the top of the spin axis away from the direction of the Sun.
 - **Third:** The third vector is the resultant gyroscopic reaction, and is defined as a rotational axis at a right angle to the other two vectors, and thus (in this example) pointing away from the Sun. The rotation about this axis is also in the counterclockwise direction so that it will initially attempt to move the Earth's spin axis away from the forward direction of orbital travel.
7. Seen from above the Earth, the axis will thus dip (tilt) away from the Sun and away from the forward travel of the Earth (in this example). Seen from above, the tip of the axis will seem to be rotating in a counterclockwise direction. Seen from Earth (looking up toward the north) the rotational axis will seem to describe a clockwise path through the dome of the stars (facing north). The stars at the pole will rotate through the sky in the opposite direction from normal.



A -- Torque Applied Above Equator



B -- Torque Applied Below Equator

[Image: Force applied above or below the equator. Illustration by J. Cook.]

- An unbalanced force applied to the southern hemisphere would result in a tilt of the spin axis of the Earth in the direction of the Sun. The reaction torque is the opposite -- it will attempt to tilt the axis in the direction toward the travel path along the orbit.

Note that in the diagrams above, the Earth's spin axis is shown perpendicular to the plane of the orbit. This is never the case. It is shown in this manner here for the sake of graphic simplicity.

Note also that I have neglected any possible longitudinal misalignment. If the compressive force first appears in the northeast, for example, there will be the additional twist of the Earth's axis away from the southwest. This would also likely pile up shoved-over mountains on the southwest side of the circular compression mark.

- The spin axis of the Earth, and the Earth with it, would swing its axis through a loop -- at least as long as the spin axis remained in motion. In the case of a force applied above the equator, the axis will swing through a loop because it is being forced simultaneously to tilt away from the Sun and at a right angle away from the forward direction of the planet's travel -- "backward," if you like. (The strange result of this is to have the region in the northern hemisphere and below the axis turn faster toward the east.)
- The reaction torque will start up instantaneously and will continue to exert its force to counter the motion bending the spin axis away from its initial direction in space. The result is a precession of the axis -- a wobble, like a spinning top which is slowing down in rotation, except that the wobble will not continue, for the Earth, after all, is not a top placed on a table. [\[note 16\]](#)
- The start of movement of the spin axis after a shock starts quickly but smoothly, for inertia has to be overcome. Inertia is the resistance of objects to a change in movement. Anything loose from the Earth, like the oceans and the atmosphere, might resist the start of the changed motion of the crust, and move in the opposite geographic direction, although mostly the motion will be limited to a reaction to the initial shock. The start and progress of the reaction torque will consist of a smooth transition.
- Once the motion is started, the same resistance to a change would guarantee that Earth's axis would continue its circular wobble, but the rate of movement would drop rapidly as the external torque is removed. The reaction torque would shift value continuously to bring the Earth's spin axis back to the location it started from.

This, by the way, is how a gimballed navigational gyrocompass works. It is a device which can be twisted, turned, flipped, and the axis of the spinning gyroscope will continue to point to the same

location in space, because it is free to move on all three axes. The fact that the spin axes of all the planets still align either within a few degrees with the Sun's spin axis or are inclined 31 to 32 degrees away from the Sun's axis, confirms the fact that the gyroscopic reaction -- the wobble -- will return the axis to the location it started from.

8. When the plasmaspheres merge, the planets will also recognize the charge difference between them and will attempt to equalize charge, first by inducing a change in the charge of the facing hemispheres. This changes the repulsive electric field force to an attractive force, mostly felt by the crust. The oppositely induced charge increases the voltage difference between the planets and an electric arc might strike between the planets to equalize charge -- a lightning strike which could travel millions of miles within the highly conductive interior of the plasmasphere (or, as likely, along the double layer of the outer edges). Once struck, an arc will continue even as distance increases. The bolt could sweep around the planet if it struck laterally, for Earth would continue to rotate.

The 8 items considered above explain why "collisions" were so infrequent. But also point up that the actual interaction could be absolutely devastating. Between 3147 BC and 685 BC Venus passed the location of Earth some 3500 times, yet in only a few instances was there any recorded interaction with Earth, even though Venus may have "come close" many times. Seven instances are noted (for Venus) in Mesoamerican sources (four of which probably in the period of 2349 BC through 2193 BC). Egyptian sources (as the cow of Hathor) also suggest seven events. Overall, in only three instances was the orbit of the Earth changed significantly enough to have been recorded as calendar changes.

As presented above, the method whereby Earth changed its orbit always involved a displacement radially away from the Sun. Earth apparently never moved toward the Sun. The inclination of the planet's orbit would remain the same. From this follows what I proposed earlier, that the inclination of the orbits of the planets has not changed significantly in 5000 years since 3147 BC. There was a change in the axial inclination of the Earth in 685 BC, but this was likely due to a giant 40 dsy coronal mass ejection.

It could be suggested that two planets might be off from being exactly in line with the Sun by the diameters of their plasmaspheres. Then the thrust to a new

orbit would be at a slight angle to the original orbital inclination. But for the combination of Earth and Venus this difference in alignment would not be much more than about 30 planet diameters, thus about 240,000 miles (386,000 km). This displacement is totally insignificant compared to the radius of Earth's orbit -- 93,000,000 miles. I do not think, therefore, that even under these possible unusual conditions the inclination of the orbit would change by even a fraction of a degree.

Lastly, it should be noted that Venus would react quite differently to a plasmasphere contact. Venus has an extremely heavy atmosphere, nearly 100 times the density of the Earth's atmosphere. It is like an ocean. Because of its density and the 700 degree Fahrenheit surface temperature, the atmosphere is the location of Venus's exterior electric charge.

The dense atmosphere would therefore be the location of the electric forces impinging on Venus in meeting another planet. But rather than being transmitted to the surface of one hemisphere, the forces would be absorbed by the atmosphere and distributed around the planet, buffeting the crust with a compression wave from all directions. The planet would not likely relocate to a new orbit, and in fact it looks like the orbital period of Venus has not changed significantly since 3147 BC, except for becoming circular at some point after 685 BC.

Lightning Strikes

About the absolute devastation of extraterrestrial lightning strikes, Dennis Cox, who has investigated altered landforms, has pointed out that the results of the initial lightning strike would have been absolutely stupendous. I have quoted from his website in Chapter 23 ("Destruction by Mars").

Cox writes from the experience of having seen the landscape. He is a welder and welding inspector, and can recognize the molten forms, even though they are rock instead of steel. But his causes are constructs from the limited imagination of the scientific community -- a dreamland of comets and meteors which doesn't exist.

We have, additionally the data from the Chicago Fire of AD 1871. This was not a electric arc from a planet, but a very similar blast from the heavens, not unlike the secondary effects of a planetary arc. Quoting from contemporary sources of the 19th century, the link [\[Chicago Fire\]](#) at Thunderbolts.info reads:

"[the flames] absolutely melted the hardest building-stone, which had previously been considered fire-proof. Iron, glass, granite, were fused and run together into grotesque conglomerates, as if they had been put through a blast-furnace."

"The huge stone and brick structures melted before the fierceness of the flames as a snow-flake melts and disappears in water, and almost as quickly. Six-story buildings would take fire and disappear forever from sight in five minutes by the watch."

These are reports from Chicago. Conditions in the rural town (and region) of Peshtigo, Wisconsin, in the same year (AD 1871) and at the same time on the same date, describe giant balloons of fire dropping from the sky. Balloons in the 19th century were not the foot-diameter toys of today, but gigantic spheres the size of houses. A second entry at thunderbolts.info continues with:

"Most, if not all [of comets], are as rocky as asteroids. The result of their fragmentation will be a meteoric shower of granulated silicates, or sand, mixed with flammable gases and electric discharge phenomena - a 'biblical' rain of fire and sand."

If I recall correctly, there is some reference in Isaiah or Jeremiah about hot sand blowing in the windows of houses, or under the doors. But this sand is not due to fragmentation, but is the result of the complete disintegration of the silicates. It is a fine powder, with the particle sizes of clays. It is the result of cathodic lightning bolts playing on the rocky comet. Thus "flammable gases" or atmospheric Oxygen are not needed. The silicates will be incandescent from their electrification: electrons in glow mode will envelop the grains as a "space charge."

A continuation of this partially quoted essay by Cox likewise suggests that: "Comets discharge carbon compounds that would be flammable in the Earth's oxygen atmosphere." Again, none of this is needed. The fire will be there -- as burning incandescent dust.

I would object also to the "detonation shock." Cox here assumes a replay of the 1908 Tunguska detonation in Siberia. But, except for the wind, the events would have been nearly silent. The eyewitness reports from the Chicago Fire and the Peshtigo Fire report that the fire was silent except for a roar of a tornado-like wind.

The charge equalization might have involved repeated single lightning strokes, or involved a lightning strike which did not let up, but continued to blast and travel mile after mile. For Mars between 806 BC and 687 BC, we should expect the arc to be tens of miles wide and fall like a sheet of fire. But this is at the eye of the hurricane. The effects at the edges would have extended maybe hundreds of miles. This would be a rotating whirlpool of soil, dust, molten rock, and flaming incinerated forests.

As the planets start to distance from each other the plasma would turn to glow mode and dissipate at the atmosphere. Even a number of full days of arcing will not equalize the charge between planets, as Juergens has pointed out. A lightning strike which would carve the Grand Canyon (a bolt which is suspected to have arrived from Saturn) would only reduce the charge of the striking planet by a fraction of a percent.

Compression Marks

If, as I have suggested, the Earth has experienced massive compressive forces a number of times due to the line-up with another planet, we should be able to search the Earth's surface for compression marks. Two stand out clearly, a crescent of mountains in the Himalayas, and a smaller similar semi-circle in Northern Alabama (US).

Before setting out some details, let me list what little we know of the impacts. The following lists the compression marks since 3147 BC:

year of impact	agent	suspected location	comments
10,900 BC	Saturn	Hudson Bay	obvious
2349 BC	Venus	Tibet	obvious
2193 BC	Venus	Central Asia ?	only suspected
1492 BC	Venus	Central Pacific	some evidence
1440 BC	Venus	unknown land ?	undocumented
747 BC	Mars	Central Asia ?	suspected
686 BC	Mercury	North Alabama	documented

"Documented," as used here, means that we can follow a trail of what was seen and was recorded in legends and myths worldwide. "Suspected" means that there is a trail of destruction which points to an inception somewhere east of the string of destruction sites.

There are other suspect locations, marked by crescents of mountains -- Northern Mongolia south of Lake Baikal, and the Elburz mountains south of the Caspian (edging on Northern Iran). In all cases (including the land contacts in the list above) the crescent is in the south or southwest of what would be the contact area for the northern hemisphere. This shows that the Earth immediately tilted away at a rate much greater than the normal displacement of the Earth's surface due to rotation. This is to be expected, for if the shock moved mountains, it must have been stupendous.

What I will do in the following is to describe the likely sequence of an impact. The reader should realize that although the "impacts" were local, these were induced from afar -- for Venus at distances of 20 million and 10 million miles (32 million and 16 million km). In three diagrams below I'll relate what seemed to have happened at the locations where we have some evidence. But first there is a need to look at two other "impact craters," the Moon's Mare Orientale basin and Mercury's Caloris Basin.

First of all, we could expect these two impact marks to be circular. If a planet remained standing still, that is, not rotating (or nearly so), the reaction torque would not send the planet into a spin which changed the location of the impact. This seems to be the case for the two very large circular marks on the Moon and Mercury.

Additionally, if the compressive force was applied at the equator of a planet, there would be no applied torque, and thus no gyroscopic reaction torque. A circular mark would be made. This might be suggested for the Caloris Basin of Mercury.

Going by the record of Mesoamerica, the Moon's Mare Orientale was likely formed shortly after 2349 BC. Mercury's Caloris Basin was probably created in 686 BC. (Mercury's Caloris basin will be described further below.) Both consist of rings of mountains and circular flat planes, surrounding a flat central depression.

The ring of mountains of Mercury's Caloris Basin is 963 miles (1,550 km) in diameter. The Moon's Orientale Basin is 578 miles (930 km) in diameter.



[Image: Mare Orientale basin of the Moon. After NASA.]

Oriente Basin is located at the extreme lower left edge of the Moon, as seen from Earth. The Oriente Basin is overlaid with younger craters, although it is thought to be one of the "youngest" craters or basins. Although lacking any evidence, it is held to be 3.9 billion years old by Establishment Astronomers.

The Mare Orientale, unlike the other circular depressions on the Moon (the Mare basins), is not a flat field of flood basalts, that is, melted rock resulting from an extended electric arc. The Orientale ejecta extends beyond the 600-mile (966-km) diameter of the rings for another 300 miles (483 km), and "contains linear patterns that point back to the center of Orientale" (Wikipedia).

The peculiar overall shape of both the basin and its ringed structure was likely created with an initial repulsive impulse which depressed the central area, causing the outer edges to lift in response. The outer ring of mountains was caused by fracturing of the crust which was pushed away from the center (overthrust). Stone and rock will fracture at a 60-degree angle from the point of impact of a blow. With both the surface of the small planet and the applied force angling away from the center of the impact area, the breaking of surface rock would happen at a low angle to the surface. Together with forces directed away from the center, this would shove a ring of crust onto the adjacent exterior surface. The drag encountered by the moving material would crumple the displaced crust into mountains.

The interior basin, on the other hand, stretched in subsiding from compression and fractured in shear (faulting, a process whereby a section of land drops down). The Caloris Basin of Mercury is noted for "lava plains," and "radial troughs." "The exact cause of this pattern of troughs is not currently known" (Wikipedia).

Within seconds of the onset of "seeing" the exterior negative voltage, electrons of the planet with a lesser charge would be chased away from the region, and the crust of the planet facing the other would assume a positive charge. That would rapidly dissipate the repulsive electric field force, and change it to an attractive force instead. The sudden withdrawal of the repulsive force would allow the depressed center to relax and raise itself again, with the result that the raised outer rings would then start to subside. The following lifting force will have the same effect.

Because the lifting force (or the negation of compressive force) build in magnitude over a period of time (although this could be short), it will not cause the shock-induced damage of the initial compressive force. The initial shock is not to be neglected, however. It is this which probably makes the central depression look like a relatively smooth lava field, as it may also have done to the smooth outer ring. Rock melted and flowed like wet clay from the heat generated by compression.

As the subsequent force provided a lift, it would have seriously aided the recovery, making the two regions of the Moon and Mercury look more like car dents which have been hammered out.

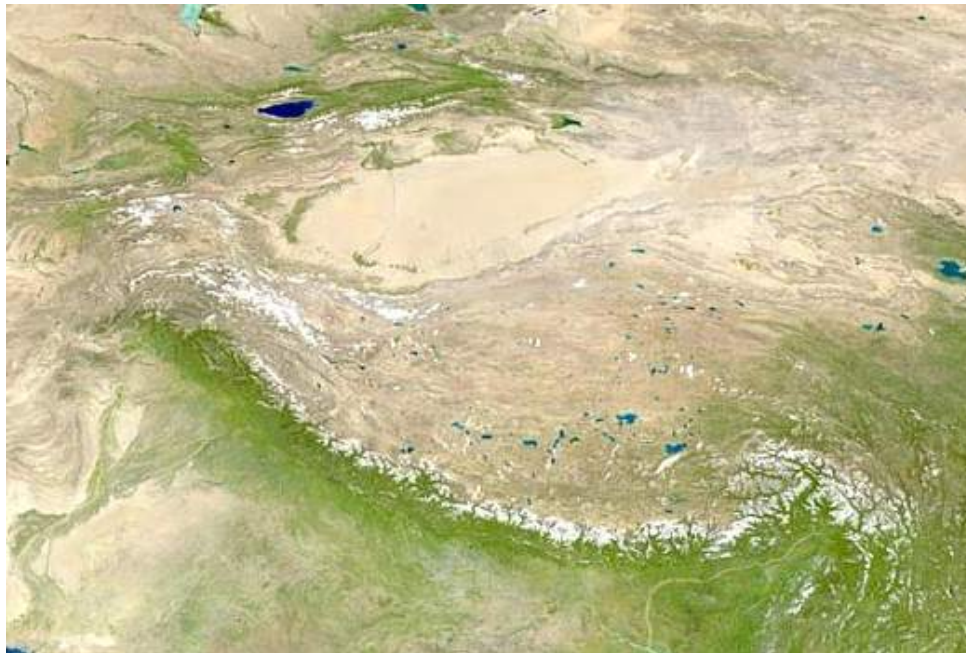
Both Mercury and the Moon show crustal damage at the antipodal locations from the impact marks. Astronomers have identified these as being the result of shock waves traveling from the Orientale Basin of the Moon and the Caloris Basin of Mercury to meet at the location directly opposite -- all the way around the Moon and Mercury.

... Hudson Bay impact

The Hudson Bay impact has been described in an earlier chapter.

... Himalayan crescent

The crescent of mountains representing the Himalayas is a prime representation of a massive compression contact. The Himalayas were shoved from the north and northeast onto older mountains. I have not made much of this in the analysis presented in the text earlier, but it becomes obvious in looking at the Himalayas.



*[Image: Himalayan crescent and Tibetan plateau.
From NASA satellite image.]*

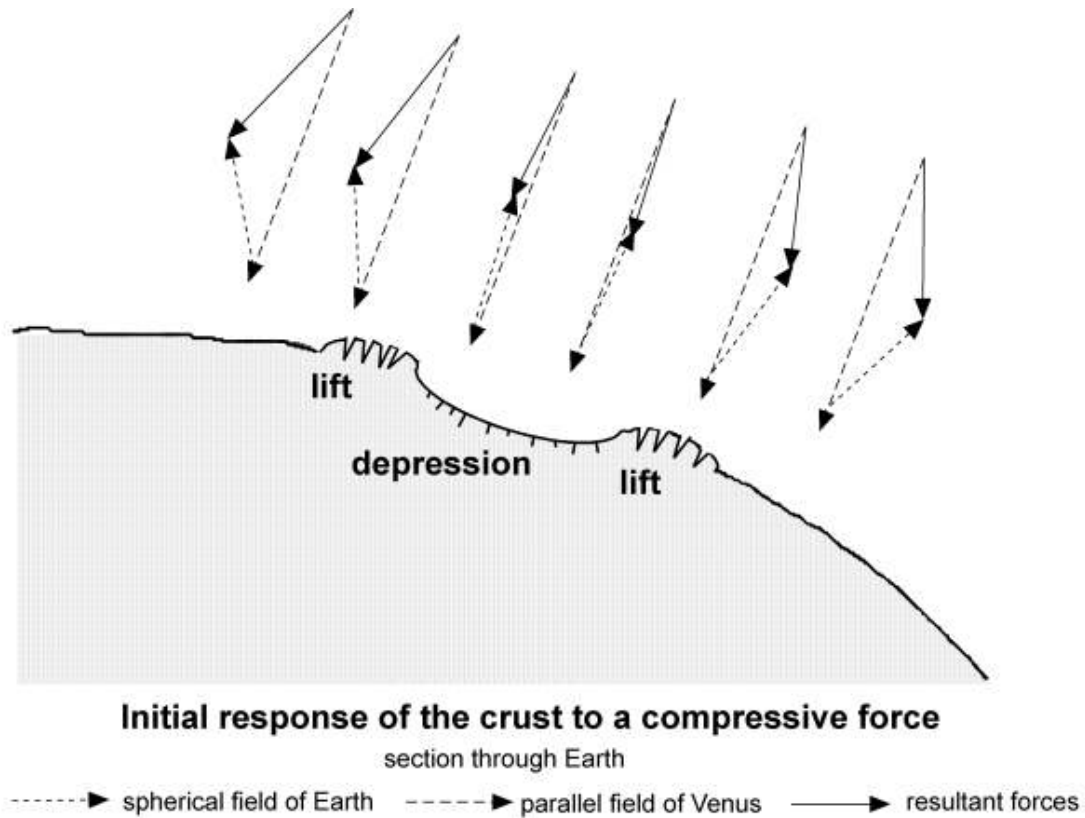
The Tibetan Plateau is nearly flat compared to the Himalayas. A satellite image is shown above. Actually, the Tibetan Plateau is a rugged elevated terrain consisting of what looks like buried mountain tops peering trough. In the upper left is the Tarim Basin. In this image, India's lowlands appear below the Himalayas.



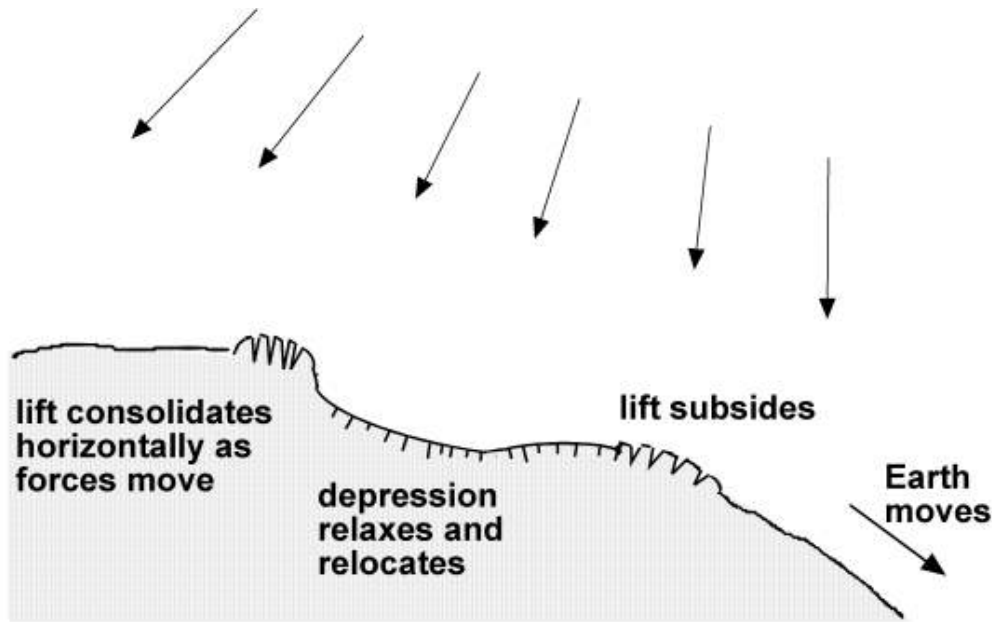
[Image: Himalayan mountains. Source public domain.]

If a compressive impact leaves a circular mark on a planet which does not significantly rotate, like Mercury and the Moon, the result is entirely different for Earth, which rotates through 360 degrees in 24 hours. The surface at mid-latitudes moves at 500 miles per hour. A planet standing still will not respond with a gyroscopic reaction, for no other rotation is affected. The fast rotation of Earth, however, would cause an immediate gyroscopic reaction, a movement at right angles both to the torques of the applied repulsive electric field force and to the spin.

I'll model the compressive force and the gyroscopic reaction in a few diagrams below.



The initial reaction of the crust would be the same as for a planet which was not rotating. The center would be compressed and would subside. The edges would rise in response, but also be subjected to compressive forces. Because these impinge at an angle, the shear, which normally breaks rock (the crust) at a 60-degree angle from the direction of impact (as any bricklayer knows), would break the crust at an angle greater than 60 degrees to the normal of the surface, in effect "shoving" the crust ahead of the compressive forces.



Response of the crust as the Earth continues to turn
section through Earth

The forces drop off unexpectedly rapidly from the center of the contact area. This is the result of combining the nearly parallel electric field due to the foreign planet and the spherical orientation of the electric field due to the Earth. In addition, the curvature of the Earth (or the Moon, or Mercury) is such that the effect of an exterior force lessens rapidly away from the center. The shock becomes directed to a nearly horizontal angle with distance from the center of the impact location.

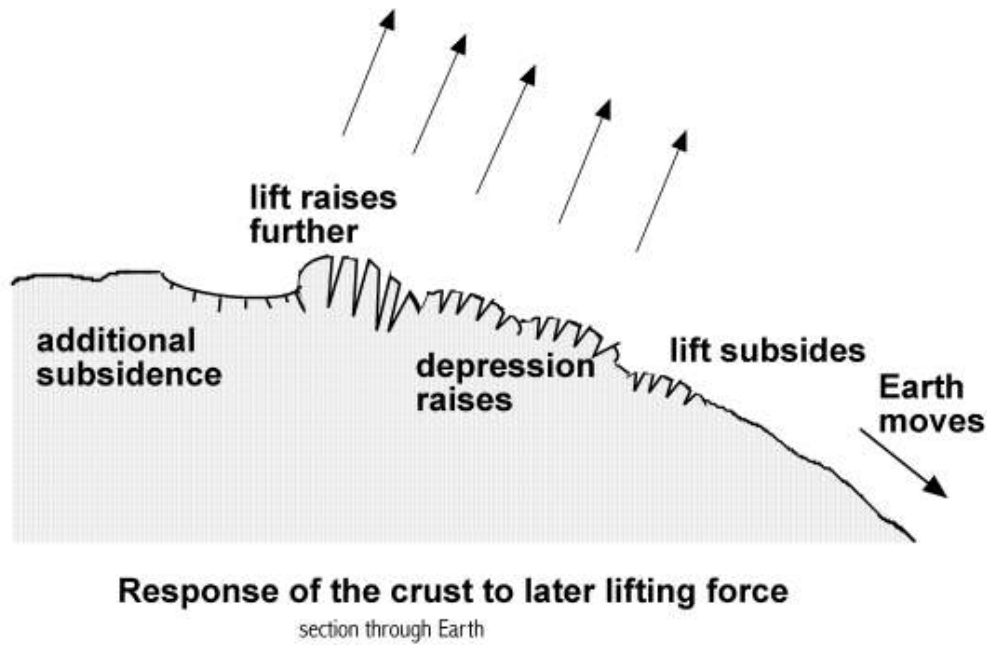
planet	compression area	area Diameter	planet Diameter	planet Circumf	degrees subtended
Moon	Orientale Basin	578 mi	2159 mi	6783 mi	31 deg
Mercury	Caloris Basin	963	3030	9518	36
Earth	Himalayas	1700	7923	24891	24

What happens subsequently is that the Earth continues to rotate, thus the external force is applied to a region away from the initial contact. The direction the Earth moves, however, does not follow its normal rotation (to the east), but a

direction determined by the impact forces and the gyroscopic reaction, which starts up immediately. For an impact to the northern hemisphere, the new direction to which the Earth's surface would move (with respect to an exterior reference) is toward the northeast, thus bringing the southwest under the external impinging forces. [\[note 17\]](#)

Thus we can define a lagging edge of the circle of impact (northeast) and a leading edge (southwest). The lagging edge now experiences reduced forces. The relaxation of the originally uplifted crust will be aided by this. Although I have shown the leading edge as uplifting or consolidating in the diagram above, this is not certain. What has happened at this juncture is that the compressive force has diminished as the external electric field induces a change of charge in this section of the crust. Electrons are chased away, and the surface becomes more positively charged.

At this point in time (and this could take only minutes), the compressive (repulsive) forces are failing and perhaps have become attractive, that is, the exterior planet now will attempt to lift the crust. This will aid the region of the initial depression, helping it back up, and causing the lift at the lagging edge to subside. But at the leading edge of the contact region the portion of the crust, which initially rose in response to the central depression, will rise even further (and cause an additional subsidence beyond the leading edge). The results of this are shown in the following diagram.



With the reversal of the value of the electric field between Earth and the exterior planet, an attempt would be made at charge equalization -- an electric arc would pass between the planets. In fact, the equalization arc might start up from the planet with the greater charge at the moment a voltage difference between the two is sensed (even with both planets at a negative charge).

Now we reach a problem. The compressive scar shows a sudden letup, but the cause for this is not at all obvious. The sudden cessation of the compressive forces cannot be due to an arc between the planets, for this would take much more time to be felt by Earth, in that the arc would have to travel from some remote distance.

For example, in 2349 BC, it looks like the arc from Venus traveled for approximately 6 hours, and was, in fact, a disconnected plasmoid bolt. From "mythological" sources, the bolt would have been enormous, and could have fried the Earth (at least, the Eastern Mediterranean region) if the initial shock had not tilted the Absu up to face the approaching plasmoid bolt. The initial release of the plasmoid from Venus would also have suddenly dropped the electric field of Venus, and it is this which suggests another cause for the sudden cessation of the compressive forces (long before the plasmoid arrived).

I am not entirely comfortable with this electrostatic simplification, especially the change of a portion of the Earth's surface to a positive value. We are here not considering a local thunderstorm, which will chase away surface electrons, but something immensely larger and of a potential measured in billions of volts.

Obviously the initial repulsive shock was limited, and in fact, it fell off as suddenly as it had first started (or we wouldn't be here at all). It is the crescent of shoved-over mountains which shows that the repulsive forces stopped rather suddenly. Otherwise we would see the Himalayas spread across India and Pakistan like frosting on a cake. The same goes for the mountain ring surrounding Huntsville, Alabama, or the US Rocky Mountains.

I have covered the look of a "shoved over" mountain range, the Rocky Mountains, in the analysis of the "impact" of 10,900 BC in an earlier chapter. I realize that it seems almost inconceivable that an exterior repulsive electric field force would have been so stupendous that it would shear mountains off at their base and shove them over hundreds of miles, to be piled up in a crescent surrounding the center of impact. Yet this is what is indicated by the geological evidence. For the North American impact all plant and animal life was incinerated by that impact force.

The 52-Year Cycle of Venus

The interval between approaches of Venus was known by the people of Mesoamerica to be 52 years. This would initially have been derived from observation in the era of 2349 BC to 2193 BC. The 52-year period can be verified, or strongly suggested, if it is found that the synodic period for Venus is a near integral division of 52 Earth years. Assuming, initially, that the period for Venus was 225 days, as it is today, and the Earth's year was 260 days, the synodic period is:

$$260 * 225 / (260 - 225) = 1671.43 \text{ days}$$

This period divides into 52 Earth years as a near even integer value, or reasonable fraction, as follows:

$$52 * 260 / 1671.428 = 8.088$$

If it could be assumed that the period of repetition of approaches of Venus was an even 8 years, then the synodic period of Venus could be calculated as:

$$8 * 260 = 2080 \text{ days}$$

From this a more reasonable (believable) orbital period of Venus could be found to be 231.1 days.

$$260 * 231.1 / (260 - 231.1) = 2079.10 \text{ days}$$

I realize that this sort of math give some people cold shivers and may induce convulsions, yet is perfectly reasonable, and the results from this reasoning fall into place with unprecedented ease.

Period of 2193 BC to 1492 BC

For the period between 2193 BC and 1492 BC I have assumed an orbital period of 273 days for Earth, but the period of Venus has to be estimated. This is so because there is no data available, except what might be guessed after from calendar implementations. Since the Mesoamerican Haab calendar was not instituted until after 1492 BC, the 52-year coincidence of the Haab and Tzolkin calendars does not apply to this era. The Haab was meant to account for the longer 360-day year after 1492 BC.

If I was to estimate a time period when the 52-year coincidence might have been initiated from observation, I would suggest the period of 2349 BC to 2193 BC. Certainly after 1492 BC this was no longer true, both because of the very large increase in the Earth's orbit (at that time) and because the incident of the Sun standing still in the sky at the time of Joshua cannot be dated to 52 years after 1492 BC (as Velikovsky has pointed out).

The following table calculates the synodic period of Venus for values of orbital periods from 231 days to 225 days. The first value of the table (231) is the likely orbital period before 2193 BC; the last value of the table (225) is the most likely orbital period after 1492 BC. Thus synodic periods at either of these extremes are not legitimate values for this time period, but will be the limits in any calculations (as shown below).

There is no continuity of dates at regular 52-year intervals between the four contacts by Venus after 2193 BC, and the first contact in 1492 BC. I suspect that in this intervening period (2193 BC to 1492 BC) the Venus cycle might have been something other than 52 solar years. The coincidence of the 52-year period between the Mesoamerican Tzolkin and Haab calendar is a mathematical

construct which is independent of the actual seasonal calendar. We have no guarantee of what the "Venus cycle" was in actuality, but the synodic period for Venus can be tested against various values of the Venus cycle, using 52 years through 45 years.

----- Venus interval for the period of 2193 BC - 1492 BC -----									
Venus period	Synodic period	----- interval * 273 / synod -----							
		52 yr	51 yr	50 yr	49 yr	48 yr	47 yr	46 yr	45 yr
231	1501.50	9.45	9.27	9.09*	8.91	8.27	8.54	8.36	8.18
230	1460.23	9.72	9.53	9.34	9.16	8.97*	8.78	8.60	8.41
229	1420.84	9.99*	9.80	9.60	9.41	9.22	9.03*	8.83	8.64
228	1383.20	10.26	10.06	9.86	9.67	9.47	9.27	9.07*	8.88
227	1347.19	10.53	10.33	10.13	9.93*	9.76	9.52	9.32	9.11
226	1312.72	10.81	10.60	10.39	10.19	9.98*	9.77	9.56	9.35
225	1279.68	11.09*	10.88	10.66	10.45	10.24	10.02*	9.81	9.60

* - near whole values

I would reject orbital values nearer 225 days (today's value), since the catastrophe of 1492 BC caused a very large change in the Earth's orbit, and would have caused a proportional change in the orbit of Venus. It is thus more likely that a value closer to an orbital value of 231 days is a likely candidate. That suggests an orbital period for Venus of either 229 days or 230 days. I am selecting 229 days.

From information detailed in the chapter "The Day of Kan," it looks like there were 11 "sightings" of Venus in the 520-year period (called a "may") ending shortly after 1440 BC. From the above table, for an orbital period of 229 days, a reduction to 48 or 47 years would be suggested. Of these two, a 47-year cycle comes closest to filling the time interval from 2193 BC to 1492 BC with a nearly even number of intervals -- it comes to within 4 years of 2193 BC.

$$520 / 11 = 47.2$$

$$2193 - 1492 = 701 \text{ years}$$

$$701 / 47 = 14.91$$

$$47 * 15 - (2193 - 1492) = 4$$

Period of 1492 BC to 747 BC

It would seem that the Venus period would be firmly established, even though based on slim data, for the period of 1492 BC to 747 BC. The catastrophe of 1492 BC was followed by another contact in 1440 BC, "52 years later" -- suggested Velikovsky. However, the date of 1440 BC is very uncertain. Velikovsky settled on 1440 BC by applying the well-known Mesoamerican interval of 52 years. This was certainly the interval when Mesoamerica expected the end of the world, but it was based on the fact that the Haab and the Tzolkin calendar come again to the same day-name and day-number combination after an interval of "about 52 years." In actuality these were Tun years of 360 days, and fell 273 days short. In Mesoamerica it was thought that the Tzolkin calendar regulated the movements of the planets.

The Venus period therefore ought to be investigated in a manner similar to the chart above. The Earth's period was 360 days; the period of Venus should be less than 229 days and more than 225 days. There were no further contacts between Earth and Venus after 1492 BC (or 1440 BC). The possible contact of Venus with Mars in 776 BC is not likely to have changed the orbit of Venus significantly, since Mars is only 1/8th of the mass of Venus. Again, in the table below, we are looking for whole numbers or reasonable fractions.

----- Venus interval for the period of 1492 BC - 747 BC -----									
Venus period	Synodic period	----- interval * 360 / synod -----							
		52 yr	51 yr	50 yr	49 yr	48 yr	47 yr	46 yr	45 yr
229	629.31	29.7	29.1	28.6	28.0	27.4	26.9*	26.3	25.7
228	621.81	30.1*	29.5	28.9*	28.3	27.8	27.2	26.6	26.0*
227	614.44	30.4	29.9*	29.3	28.7	28.1*	27.5	26.9*	26.3
226	607.16	30.8	30.2	29.6	29.0*	28.4	27.8	27.2	26.7
225	600.00	31.2	30.6	30.0*	29.4	28.8	28.2	27.6	27.0*

* - near whole values

For two reasons I would select a period of 225 days for Venus (which is nearly today's value). First, because the synodical period of 600 days shows up in calendars dating from this period as a whole number product of the period of the Moon ($20 \times 30 = 600$) and the period of the Earth ($5 \times 360 - 3 \times 600 = 0$.) Second, because it is most likely that the contact with Venus in 1492 BC reduced its orbit in proportion to the 100-day increase in the Earth's orbit. (The later change of the Earth's orbit in 747 BC was due to Mars, not due to Venus.)

Selecting a Venus cycle of 50 years moves the event of the Sun standing still for Joshua from 1440 BC to 1442 BC. This resolves the difficulty Velikovsky had in justifying a date of 1440 BC. I have not corrected this elsewhere in this text. A 50-year Jubilee of the Jews was instituted after 1492 BC. I do not know if this was the actual interval, or how it was counted, but it is suggestive.

Period of 747 BC to today

After 1440 BC there were no further "close calls" by Venus. The orbit of the Earth rounded later in 670 BC, which may have completely voided the condition. Mesoamerica, however, continued to celebrate "world endings," based entirely on the Haab and Tzolkin calendars, as it had always been. The period for this is 52 years of 365 days (18,980 days), which is somewhat shy of 52 Gregorian years, but not enough to make much of a difference during this time.

Summary of Venus Orbital Periods

From the above we have the following estimates of the period of Venus for various periods of time.

----- Venus interval for the various periods -----					
time period	Earth period	----- Venus -----			
		period	synodical	Maya cycle	
3147 BC - 2349 BC	240 days	up to 240	unknown	unknown	
2349 BC - 2193 BC	260	231.1 days	2080 days	52 years	
2193 BC - 1492 BC	273	229	1420.8	47	
1492 BC - 747 BC	360	225	600	50	
747 BC - today	365.24	224.7	583.9	52	

Crossed Orbits

Following below are some estimates of the orbit of Venus and Earth in terms of their perihelion and aphelion. This is of interest if it is held that planets "collide" when their orbits cross. The orbits of Earth and Venus were probably nearly the same at first (but not in the same plane), as would be expected, and likely crossed, but none of all the possible orbital crossings ever resulted in

physical interference with each other. We certainly know that for certain; we are here to testify to this.

It should be realized that electric contacts would only happen when both planets crossed the equator of the Sun. The two planets have to be in a direct line with the Sun for the plasmasphere tail of an inner planet to be sensed by the outer of the two planets. The geometry of that condition defines an equinox for both orbits. A look at past electric contacts between Earth and other planets places each of them at or very near an equinox.

Using Kepler's Third Law, the average orbits can be found from $(T_{\text{Venus}} / T_{\text{Earth}})^2 = (r_{\text{Venus}} / r_{\text{Earth}})^3$, which is most easily accomplished by setting the radius of Earth's orbit to 1, that is, 1 AU.

----- Venus interval for the various periods -----				
time period	Venus period	Venus orbit	Earth period	Earth orbit
after 3147 BC	unknown	unknown	240 days	0.75 AU *
after 2349 BC	231.1 days	0.737 AU	260	0.79 *
after 2193 BC	229	0.733	273	0.83
after 1492 BC	225	0.724	360	0.99
after 747 BC	224.7	0.723	365.24	1.00
* data from calendar analysis, Appendix A, "Chronology"				

In 2349 BC Venus and Earth might have approached no closer than 12 million miles, and more likely at a distance on the order of 17.5 million miles (28 million km). This was the estimate derived earlier (in an endnote to the chapter "The Career of Jupiter") based on the time of travel of a plasmoid from Venus to Earth and the timing of eyewitness accounts around the world.

We can be fairly certain of the separation distance of about 12 or 17.5 million miles, for if Venus had approached Earth as close as (perhaps) a million miles, then, as many others have suggested, Earth would have been devastated by repulsive electric forces.

If in 2349 BC, Venus struck from a distance of 12 million miles, then we would expect the "contact" of 1492 BC to mostly repeat at the same separation distance. The orbits of Venus and Earth changed, but not all that much, and it would be reasonable to suggest that the planets would again meet under nearly the same conditions. In 1492 BC, if Earth and Venus were on circular orbits

(which they were not), then they would have approached no closer than 9 million miles (14 million km).

$$(0.83 - 0.733) * \text{AU} = 9,021,000 \text{ miles.}$$

Yet, as we know, catastrophic interactions took place in 2349 BC and 1492 BC despite these immense distances. It would have to be suggested that the initial orbits of all the inner planets were eccentric, moving on part of their orbit much further from the Sun than estimates of the average radius of the orbits would suggest (the orbital period remains the same for eccentric orbits). We know virtually nothing about the eccentricity of the orbits of Mars and Mercury, except the suggestion that their orbits remained the same into the 7th century BC. We do know some things about the orbits of Venus and Earth, although the information is late -- also dating from the 7th century BC.

An investigation by Lynn Rose and Raymond Vaughan in 1974, of the 7th century BC *Venus Tablets of Ammizaduga*, found in the library of Assurbanipal, determined that the eccentricity of the orbits of Venus and Earth were still at 0.15 and 0.10 respectively before 670 BC, but Earth's orbit became nearly circular (0.01) in 670 BC. The eccentricity of Venus changed to today's value of 0.006 at an unknown later date.

I have suggested above that the period of Venus probably did not change significantly in remote antiquity. Using the eccentricity of 0.15 found by Rose and Vaughan, the perihelion and aphelion of Venus can be determined from the average orbital radius, the semimajor axis.

The eccentricity multiplied by the semimajor axis (the average radius of an orbit) will yield the amount by which the perihelion or the aphelion of the orbit (the closest and furthest distance from the Sun) differs from the "average radius" of the orbit. The perihelion of Venus, for example, in 685 BC, will be found to be:

$$(1 - 0.15) * 0.723 \text{ AU} = 0.614 \text{ AU}$$

The aphelion would be:

$$(1 + 0.15) * 0.723 \text{ AU} = 0.831 \text{ AU}$$

Assuming that the eccentricities found by Rose and Vaughan are indicative of earlier conditions, we could calculate the perihelion and aphelion of both Venus

and Earth for various time periods and compare these to see if the orbits potentially crossed. First, for Venus:

Perihelion and Aphelion of Venus before 685 BC, 0.15 eccentricity			
time period	semimajor axis	perihelion	aphelion
-----	-----	-----	-----
after 2349 BC	0.737 AU	0.626 AU	0.847 AU
after 2193 BC	0.733	0.623	0.843
after 1492 BC	0.724	0.615	0.832
after 747 BC	0.723	0.614	0.831

Similarly the perihelion and aphelion of Earth can be found for various estimated orbits in antiquity as follows.

Perihelion and Aphelion of Earth in antiquity, 0.10 eccentricity			
time period	semimajor axis	perihelion	aphelion
-----	-----	-----	-----
after 3147 BC	0.75 AU	0.675 AU *	0.825 AU
after 2349 BC	0.79	0.711 *	0.869
after 2193 BC	0.83	0.747 *	0.913
after 1492 BC	0.99	0.891	1.089
after 747 BC	1.00	0.990	1.010

* -- Earth perihelion falls within Venus aphelion

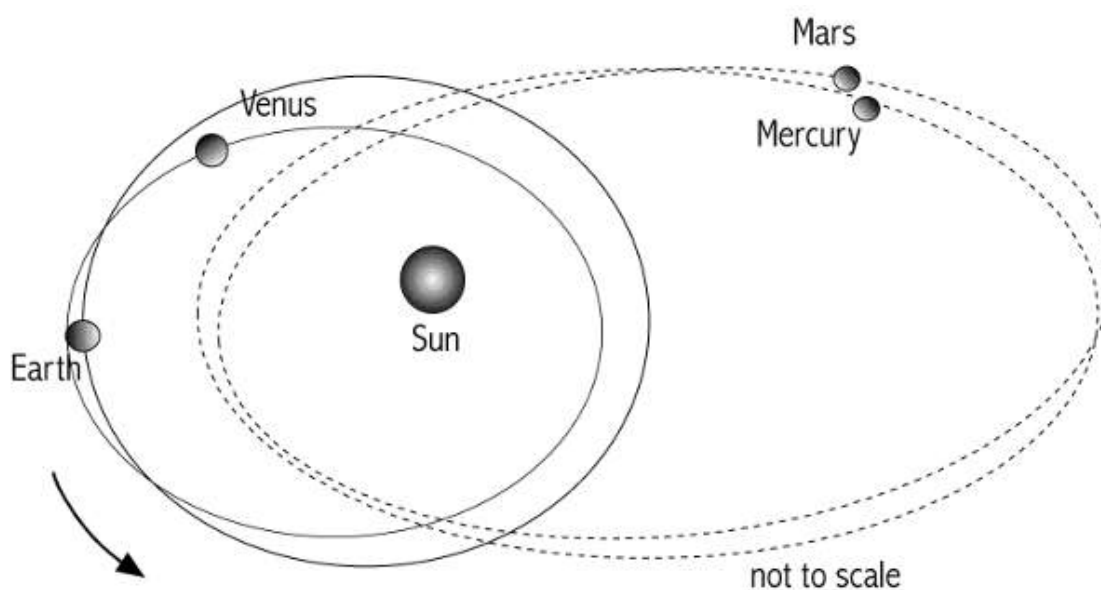
These numbers define orbits which potentially cross, since until 1492 BC the perihelion for Earth was less than the aphelion for Venus. (That they actually crossed would depend on the relationship of the two orbits.) What is certainly shown from the above table, is the possibility that the two planets were on genuine "collision paths" until 1492 BC. Since Earth was three times displaced to a larger orbit by Venus, then Venus would have to be inside the orbit of Earth at the moment an electric contact was made. Coming close to each other would be insufficient reason for interaction. To interact electrically the plasmaspheres of the planets have to touch. This only happens if two planets are in line with the Sun while "passing" each other, because the tails of the plasmaspheres of planets all point away from the Sun. [\[note 18\]](#)

What I have shown above is the possibility of "collision" courses for Venus and Earth. This is a favored proposition of catastrophic analysis, despite the fact that

crossing orbits will not likely do anything bad. But these crossings certainly bear on the Mesoamerican concept of the possibility of disaster based on 52-Tun year intervals, which was the condition between 2349 BC and 2193 BC. During this 150-year period Venus was seen to cross Earth's orbit, with disasters in 2349 BC and 2193 BC, and perhaps (likely) at other 52 year intervals.

But these events probably had nothing to do with Venus crossing Earth's orbital path. It was just that the crossing of orbits remained visible until 1492 BC. The Olmecs were right in instituting whatever ceremonies were required to prevent any further catastrophes. It worked, too.

The Orbit of Venus



Inner orbits after 3050 BC

Shown in the diagram above, Venus's elliptical orbit falls partially outside the Earth's orbit. The planet Venus would be seen between the Sun and Earth every two years or so, and would line up directly between Earth and the Sun at intervals of 700 or 800 years. These "meetings" would depend, among other things, on the slow rotation of the second nodal points of the orbits of Earth and Venus.

The orbit of any planet is an ellipse, with one "focus" (nodal point) at the Sun, and the other some distance away from the Sun. The second focus of an elliptical orbit slowly rotates (precesses) around the Sun. There will therefore be

periods of hundreds or thousands of years where two planets would never line up. Precession of orbits is gravitationally induced and thus depends on how close the orbits of various other planets are, and the sizes of the planets.

Precession of orbits should not be confused with precession of the equinox (the intersection of the equatorial of the sky and the ecliptic). The equinox currently moves 50 seconds of a degree west per year. This is determined by the precession of the rotational (polar) axis. The complete precession of the rotational axis takes 27,000 years currently.

The second nodal point of Earth's orbit currently moves 10 seconds of a degree east per year in a counterclockwise direction as seen from above. Today the Earth's orbital precession takes 112,000 year to complete a full swing around the Sun. The location of the aphelion of the Earth's orbit (the part of the orbit where Earth is furthest away from the Sun, which corresponds to the location of the second nodal point) slowly moves in a circle around the Sun. Aphelion of Earth's orbit is today reached at about July 4th. The orbital precession of Mars is 43,000 years today. [\[note 19\]](#)

In the case of Earth and Venus, there would be a series of "close calls" when the precession of the orbits caused the two planets to reach the same radial location around the Sun at the same time. The close calls would be spaced widely apart in time, for it would depend on the ratio of the lengths of the orbits of the two planets, and additionally would only occur when both planets crossed the equatorial of the Sun at the same time and at the same radial location (angle) with respect to the Sun. Four approaches (or what, to humans, looked like approaches), happened between 2349 BC to 2193 BC and twice between 1492 BC and 1440 BC, at intervals of 52 and 50 years, three (or four) of which resulted in plasma contacts between Venus and Earth. [\[note 20\]](#)

Venus in 2349 and 2193 BC

An approach of Venus with Earth happened in 2349 BC. It had been waiting to happen for 700 years. As Venus passed between Earth and the Sun, the plasmaspheres of the two planets touched and merged, a sudden electric repulsive impulse from a distance of about 20,000,000 miles shoved Earth away from the Sun and a giant plasmoid electric arc traveled from Venus to Earth, followed by lesser plasmoids. The orbit of Earth enlarged by 5 percent. The Absu was severely disturbed and disappeared. The orbital period of Venus seemed to have remained almost the same.

Because of the spectacular nature of the event, we know a considerable amount about this. It includes the "flood of Noah," the flood of Yao in China, the fall of the Absu, the return of Jupiter from death, the appearance of the Pleiades, the placement of the southern stars, and the appearance of the Moon. There are retellings from Babylonian, Bible, Canaan, Chinese, Egyptian, Vedic, and Maya sources. The Gregorian equivalent calendar day for the event is noted in the chapter "The Career of Jupiter," and can be verified from Olmec site alignments, discussed in the chapter "Olmec Alignments." The orbit of the Earth enlarged to 260 days (from 240 days). The Moon appeared as the Earth moved to a larger orbit. It is uncertain how long it took the Moon to regularize.

The electric contact with Venus in 2349 BC was the first of four such events during this era (I suspect). All can be dated (or at least, estimated) from the records of the first histories. The details are reported in the chapter "The Career of Jupiter." For the last event (of 2193 BC) we have considerable climatic and historical evidence, but no spectacular tales. Akkad collapsed and the Old Kingdom of Egypt came to a sudden end. The Earth's orbit enlarged to 273 days. This last contact happened 156 years after 2349 BC, in 2193 BC -- three times 52 solar years. The 52-year interval, I should note, was only in effect during this period. At later times it was 47 and 50 years.

Venus in 1492 and 1440 BC

A second series of approaches between Venus and Earth started in the year 1492 BC, with the second some 50 years later in 1442 BC (originally thought to be 52 years, and 1440 BC). Venus, on an inner orbital path, aligned with the Earth and Sun. This approach was apparently much closer (about 10 million miles, 16 million km) than the previous contact of 800 years earlier (about 20 million miles, 32 million km). Following a massive compressive impact in the Pacific Ocean below the equator by a few degrees at most, an arc from Venus to Earth was delivered laterally, traveling (perhaps) a number of times around the globe. [\[note 21\]](#)

Genesis details two more contacts, one 6 days later, and one 6 weeks later. Even if these intervals were written to conform to a required completion before the Sabbatical seventh day or seventh week of the new era, it does not matter. It would, as I have pointed out, take about 6 days for the plasmasphere tail of Venus to pass by the plasmasphere of Earth.

The climatic and historical record of the events stands out clearly. The immediate effect of the circumferential arc was a cloud cover lasting decades, resulting from the arc traveling through the Pacific, Indian, Mediterranean, and Atlantic oceans. But more likely the cloud cover was due to the compressive force which landed in the Pacific Ocean, which was followed directly by a lifting force. And then an arc. The cloud cover is described in Genesis and in Mesoamerican records. The Israelites "walked in darkness" for 40 years; in Mexico "the people grew up in darkness."

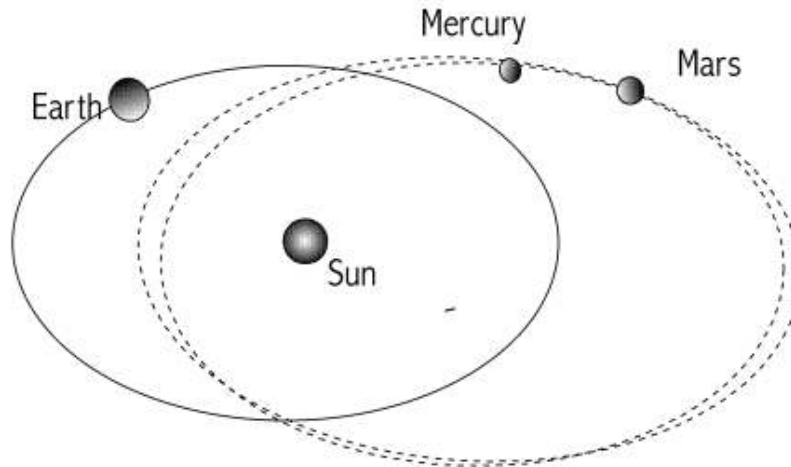
I would blame this "darkness" on water vapor clouds, since the downturn was fairly short. This was unlike the longer climatic downturn of 2193 BC, which was due to nanometer-sized dust particles. Yet, the most drastic and permanent change was a severe decline in temperature. Much of this can be attributed to a radical change in the orbit of the Earth, a sudden jump from 273 days per year to 360 days, which moved Earth 30 percent further from the Sun.

Afterwards, Venus would frequently have been seen in the daytime skies, and perhaps periodically at close range ("close" being defined as 10,000,000 miles or so, 16,000,000 km). This is the image of the Goddess Isis or Inanna, generally benevolent but with a mean streak recalled from earlier encounters.

The Orbit of Mars

Mars did not escape from Saturn until after Saturn had receded some distance from the Sun. As established in Appendix A, "Chronology," Mars probably was released 80 years after 3147 BC, and thus was first seen in 3067 BC.

By that time the planets Jupiter and Saturn would already have relocated 50 or 100 million miles further away from the Sun. By the time Mars was released it would have started with an aphelion much further away from the Sun than Earth or Venus, probably at two AU, the edge of the asteroid belt.



not to scale

Elliptical Orbits of Inner Planets, Showing Near Approaches of Mars and Earth

The orbit of Mars overrode the orbit of Earth during the first 300 years after 3067 BC, and repeatedly crossed Earth's orbit close to Earth. Mars came close enough (with Mars beyond or above Earth), for Mars to make electric contact (via a plasma stream) to Earth -- recalled from the text of spells on coffins and pyramids, and eventually recorded in the Egyptian *Book of the Dead*. The Egyptians understood this as Horus taking on the leadership of Egypt (similar interpretations obtain in Sumer).

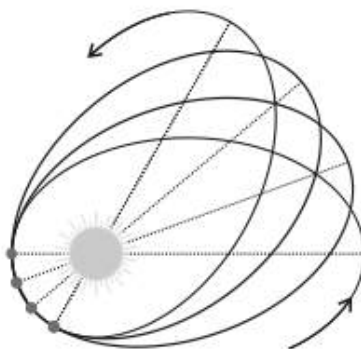
Any dates at all would qualify for a contact between Earth and Mars, because Earth and Mars would not need to be in line with the Sun, unlike the condition of an electric field force between Earth and Venus.

But Earth and Mars would near each other only on rare occasions. In the 300-year period after 3067 BC this apparently happened at 30-year intervals -- although the sequence of kings at Kish, pharaohs in Egypt, and the birth of first sons in the Bible all happen at various intervals of 25 to 35 years. Mars would appear close to Earth, possibly above the northern hemisphere, seen at first on the night side, then seen rotating around the sky, and finally entering the day skies (or the reverse of this). The movement and rotation of Mars is, of course, caused by the rotation of Earth. When close to Earth, a conical plasma connection was established between Earth and Mars -- from the Earth's ionosphere to the lower hemisphere of Mars. Because the edges of this cone were the most dense, it looked as if the "mountain" had distinct edges and flat sides, like a pyramid. Mars would lose its plasma connection with Earth as soon

as some distance was achieved. Strange as the suggestion for this condition seems, it is the only explanation of the sudden start of building pyramids worldwide when Mars no longer appeared after about 2750 or 2700 BC.

This sequence of events probably lasted only a few days at the most. Then Mars was off again into deep space (or toward the Sun), repeating this performance approximately 30 years later. The event of sitting on a throne, with what looked like a race around the skies of Earth possibly established some elements of the "Sed festival" of the Egyptians, celebrated at 30-year intervals.

We don't know when it stopped, but after about 300 years the Earth and Mars did not close in on each other again, at least, not until 1000 years later in 1900 BC, or 2000 years later in the 8th century BC.



*[Image: Rotation of second nodal point of an orbit (apsidal precession).
Illustration after Wikipedia, public domain.]*

It is likely that the elliptical orbits of Mars and Mercury rotated away from the orbit of Earth -- precessed away. It would take very little precession of the orbits to entirely remove any "close calls" and it would take a full rotation of the elliptical orbits to bring back the condition where Earth and Mars would again come close to each other.

If we go by Horus names taken by pharaohs, and the kings of Sumer with God status, it looks like the orbit of Mars fell completely away from the orbit of Earth after 2700 BC, for the references to God-like kings in the Mesopotamian *King List* cease at that time. By 2600 BC humans started to build mountains of chalk and pyramids of stone to invite a return of the God, something which happened worldwide. The constructions were an indication that the primary image had disappeared, and typically, the humans felt that it was up to them to induce the return of the God.

Using an Ephemeris

Throughout this text I have checked the heavens with an ephemeris program named "SkyGlobe 3.6," written by Mark Haney in the early 1990s and issued by KlassM SoftWare. It shows the Moon and planets, the ecliptic, and the constellations. It can be set for different geographic locations and different dates. As locations I mostly used Cairo, Baghdad (for Babylon), Beijing, and Mexico City. From my perspective, the program will be in error at dates earlier than 685 BC. More on that below.

SkyGlobe makes allowance for the precession of the equinox, skips the year zero, and switches from Gregorian to Julian in October of AD 1582 (based on Julian days). Correction from a Julian calendar to a backward extension of the Gregorian calendar can be (approximately) accomplished by adding 1.5 days for every 400 years before AD 1582, starting with a 10 day difference. [\[note 22\]](#)

Locations on the dome of the stars are identified by elevation and azimuth, and Right Ascension. Right Ascension (in hours) is calculated from the spring equinox for the date being viewed, which is a drawback at times (even though it is the standard today). Because the motions of the planets are based on calculated approximation, there is some slippage in moving far into the remote past.

The program also allows seeing the Solar System in rotation from above. This feature is of great value in checking for locations and conjunctions of the planets as a function of time. A single key will allow rotating the system in hours, days, months, etc.

As with any ephemeris calculations, some corrections have to be made. All the dates from before the Roman era should be corrected by four years for the error introduced in our reckoning by Dionysius Exiguus in AD 532. Thus for any known date in the Eastern Mediterranean, the ephemeris should be pointed to a date four years earlier -- further back in time (and on occasion, five years). An additional error of one year, for the passage from AD to BC, needs to be kept in mind. The SkyGlobe ephemeris program, however, properly skips the year zero between the eras, although this takes it out of phase with "astronomical" dates by one year.

Patten and Windsor write the following about Exiguus:

"Dionysius Exiguus was a medieval monk, who was given the task of resolving a calendar dispute as to the proper date for Easter. Later research revealed Dionysius had missed four years in assessing the year of Christ's birth. Many centuries before this error was identified, his dating system for history had come to be accepted."

"His error was not revised, in order to minimize confusion. By the time his error was realized, the sequencing of historical dates for the Roman Empire and for early Christianity had long ago become too widely accepted. So Dionysius's dates were kept, and mankind was left with a quixotic system. The accepted system cites that Christ was born in 4 B.C.E., seemingly an impossibility."

-- Donald W. Patten and Samuel R. Windsor *The Mars-Earth Wars* (1996).

The correction of 4 years applies to dates for the Eastern Mediterranean region, where all dates are tied to the Babylonian king list developed by Ptolemy, extending from 747 BC until the second century AD. It does not apply to dates from China where researchers of the 19th century have correctly converted dates to an absolute Western chronology. All celestial dates from China which I have inspected via an ephemeris were correct for the listed date.

I need to add one more caveat. An ephemeris program based on today's orbits cannot be correct for dates before the 7th century BC, for the orbits of Venus, Earth, Mars, and Mercury all changed in the eighth and seventh century. In addition the whole dome of the stars rotated some 15 degrees in 685 BC, in effect shifting the equinox by two weeks.

But it is unlikely that the changes in orbits in the 8th and 7th century BC would make any significant difference when it comes to using an ephemeris for slightly earlier dates. Conjunctions might be off by a few days at most. This is because most of the changes I have proposed involve orbital eccentricity, of which we know, admittedly, almost next to nothing. If a planet's orbit changes shape, the planet will slow down on the portion of the orbit further away from the Sun and speed up on the portion closer to the Sun. The net effect is that the period does not change.

This is not true for Mercury, which changed its orbit and period radically in 686 BC. Otherwise, the sky before 685 can be simulated by setting the ephemeris to about 2000 or 2300 BC.

For the changes in 685 BC we have little to go on except what we know about Venus from the Mesopotamian Tablets of Ammizaduga and the Maya canonical values of the appearances and disappearances of Venus (from the *Dresden Codex*). The Maya values (last recopied in AD 1200 from earlier sources of about AD 700) total to 584 days, as they do today, even though the appearances of Venus in the skies and its disappearance behind the Sun differ from today's values by as much as 40 days.

This suggests that the orbit of Earth or Venus would make a difference in the synodic period of Venus only if we insist that a change in the shape of the orbit would in effect constitute a new orbit. But the synodic period of 584 days of Venus remained the same before 685 BC as after, even if portions of the time of the appearances and disappearances of Venus in the skies changed considerably. This last relates to the changes in the eccentricity of the orbit of Venus, which has subsequently become nearly circular. The ratio of the synodic period of Venus to Earth in 670 BC is nearly the same as today (1.63, today it is 1.625).

The change in the Earth's orbit, which added 5 1/4 days to the year in 747 BC, is only a 1 1/2 percent change from a 360-day orbital period. Thus the ephemeris would be "off" by only approximately 1.5 degrees before 747 BC. Lastly, the relationship between the Earth and its Moon and the Sun is radial. A change in the shape or size of the orbit does not change eclipses of the Sun or Moon significantly.

What this means is that, first of all, an ephemeris can be used, with some caution (and if obvious adjustments are kept in mind), for the period before 685 BC or even before 747 BC, and it can probably be used back to 1492 BC. And, secondly, this also means that nothing will be proven from an ephemeris about changes in the Earth's orbit, its ellipticity, or the timing of the equinox, or from earlier records of eclipses of the Moon or the Sun.

The Eighth and Seventh Century

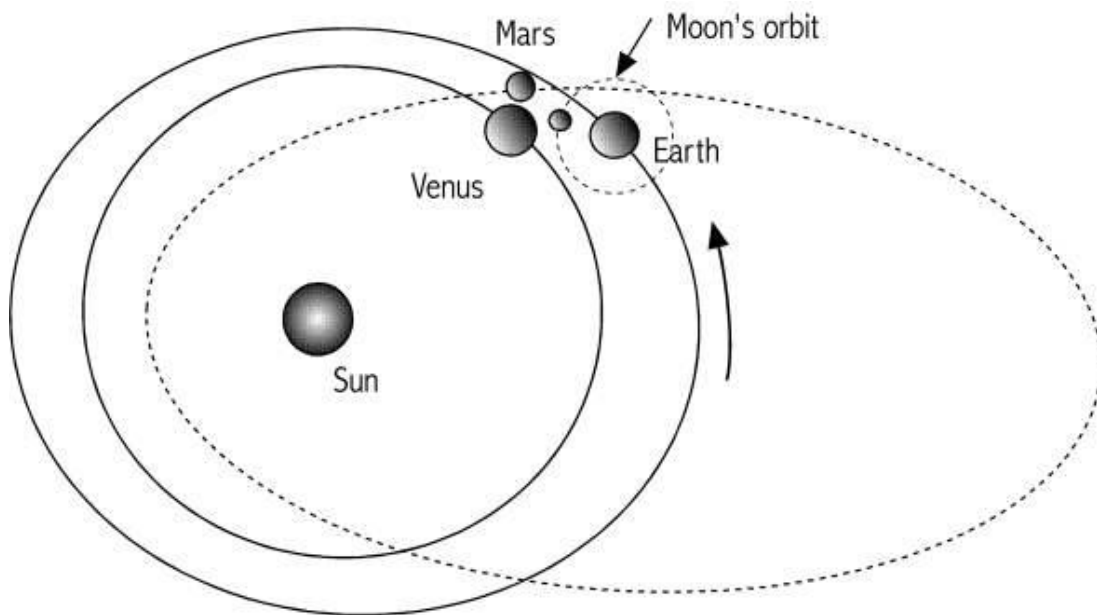
The orbits of Mars and Earth crossed, after 1492 BC, but differences in inclination of the orbits and the location of their respective aphelion kept the two planets apart most of the time. If nothing else, these interactions kept alive the images of the Gods and their incomprehensible activities. It would take a long time before the slow alterations in the orbits would bring Mars close enough to Earth to cause any damage.

That started to happen in the eight century BC. The details can be gleaned from a number of sources, including Mesoamerican annals, and Chinese records. There are a number of dates marked with celestial events during these two centuries, which are discussed below, including the following:

- -- 776 BC, the suspected date when Mars and Venus both show up on the day side of Earth, and are involved in a ballgame with the Moon or Mercury. The eastern Mediterranean understood this as a race,
- -- 747 BC, the date of an Earth shock, a change in the orbit of Earth, and the start of "the era of Nabonassar."
- -- 686 BC, the date of a second Earth shock, due to Mercury.
- -- 685 BC, the nova event of Venus and Mercury, and a change in the aphelion of Earth, which moves the orbit away from Mars's orbit.

What I will do below is to present mostly ephemeris information for these events. All the other evidence is presented in detail on the narrative pages of the main text. All the dates shown below are on the Julian calendar.

The Ballgame of 776 BC



not to scale

Earth, Mars, Venus conjunction of 776 BC

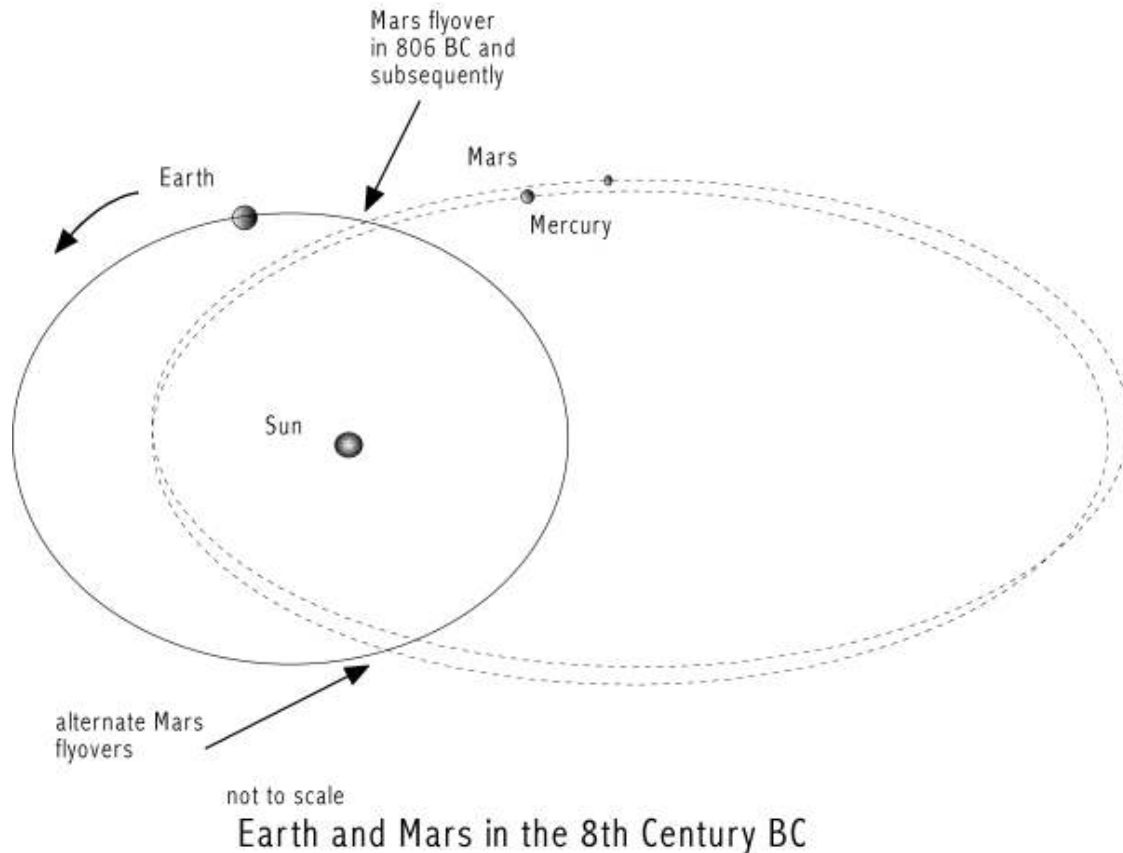
The date of the ballgame of 776 BC was inferred (by others) from the date of the first Olympic Games (772 BC). The question to be asked of an ephemeris program for the year of 776 BC is if Mars and Venus could simultaneously appear on the day side of Earth in 776 BC. [\[note 23\]](#)

Of course using an ephemeris based on today's orbits will place Mars outside of Earth's orbit. I will have to suggest the existence of eccentricities which no longer show today and assume that in actuality Mars crossed the orbit of Earth at an earlier time. Venus, still on an eccentric orbit, would come near Earth but remain inside the orbit of Earth. The only requirement for an ephemeris program is to show that Venus, Mars, and Earth might have been in (or near) inferior conjunction at some date during that year.

An inspection of the orbits of the planets between the years 800 BC to 700 BC show any number of these near conjunctions of Mars, Earth, and Venus during this period, at six and seven year intervals. The following endnote lists these, along with the angle between the three planets, as measured from the Sun.

Mars is at inferior conjunction in February of 776 BC (thus passing close to Earth), with Venus passing Earth (or certainly seen) at the same time on the day side. Between February 24th and 25th, the Moon passes by Venus in the day sky. It is a remarkable coincidence that one of these conjunctions falls in 776 BC. [\[note 24\]](#)

Mars in the 8th Century



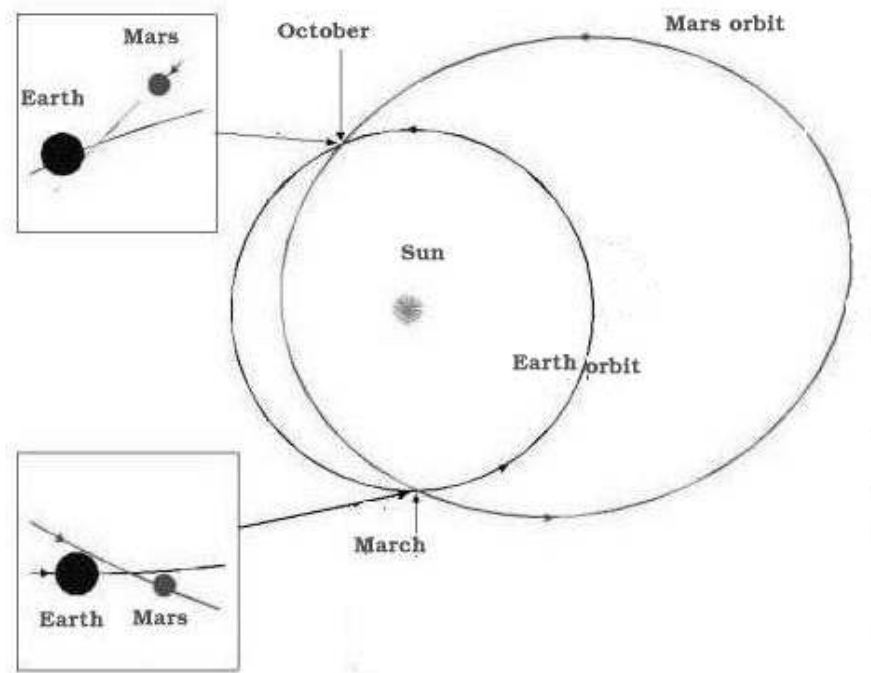
It seems that only after the simultaneous appearance of Venus and Mars inside the orbit of Earth in 776 BC -- which became the starting point for the Olympiads -- did Mars repeatedly start cruising close to Earth. (In the chapter "Destruction by Mars" I propose, however, that the contacts started in 806 BC.)

In the diagram above I have noted two possible locations where Mars might have made a near contact with Earth. This is based on the model developed by Patten and Windsor. It should be expected that these would be separated by years -- that is, after Mars made an approach at the location in the lower right quadrant of the diagram above, the following close approach would happen at the location in the upper right quadrant 15 years later. (This mechanism of alternating locations is also after Patten and Windsor, although they use an interval of 54 years.)

747 BC, the First Earth Shock

Patten and Windsor, in *The Mars-Earth Wars* (1996), propose that the length of the year changed in 701 BC. Considering the extensive evidence of calendar changes following on 747 BC, I will hold with the date of 747 BC. The starting

year 747 BC (-747) and the date of February 26 is used for the compilation of the "Era of Nabonassar" by Babylonian astronomers. [\[note 25\]](#)



*[Image: Mars in the 8th century BC; after Patten and Windsor.
Similar to prior image. Mercury not shown.]*

Patten and Windsor, for reasons of the celestial mechanics of their model, suggest a close approach of Mars and Earth and a change in the length of the year in 701 BC, and place this at the time of a full Moon. In their model, Mars travels between Earth and the Moon on the night side, and disturbs both orbits. This scenario is demanded if only gravitational interaction is used to change the orbit of the Earth. My suggestion is that Mars traveled past Earth on the day side. By coincidence this was a day of a new Moon.

The year 747 BC can be inspected with an ephemeris program. It will be the first year for which an ephemeris program should be nearly correct. Mars is in inferior conjunction (on the assumption that its travel took it inside the Earth's orbit) on about mid-March of the year 748 BC, Julian (-747) (which is 8 days earlier on the Gregorian calendar, but not exactly on February 26th). March 2 or 3 is the day of a new Moon, the second new Moon after the winter solstice. [\[note 26\]](#)

"The present definition of the Chinese New Year, as the second New Moon after the Winter Solstice, dates from the inception of the T'ai-ch'u Era in 103 BC."

-- Kelley L. Ross (2004)

On this day (February 28th) of the Maya Long Count, the count of days since August 11, 3114 BC, reaches a "zero position" at Baktun 6, with all the other cycles at zero (6.0.0.0.0). A change in Baktun happens only at about 400 year intervals. Baktun 6 was reached on February 28, -747, Gregorian.

687 or 686 BC, the Second Earth Shock

The second Earth shock can also be searched for. This event was suspected to have happened in 686 BC (-686), on March 23. There have been suggestions that 701 BC should be used, but we have a parallel record from China, with the suggestion for a date of March 23. Mercury is the agent for the Earth shock of 686 BC.

What is certain about this event is that none of the numerous people, including Immanuel Velikovsky, who have attempted to establish the year and date have come up with anything conclusive. A perusal of *Worlds in Collision* (1950) and the unpublished manuscript "The Assyrian Conquest" (1978), will show that no agreement was ever reached. The only certain date is from two Chinese sources, and both equate to March 23, 686 BC (Julian). The confusion encountered by Velikovsky may simply be due to the mismatch of astronomical chronology for China and the chronology of the Eastern Mediterranean. The Chinese dates were retrocalculated in the 19th century, and are listed as astronomical dates. These dates should be numerically reduced by four years to match dates in the chronology of the Eastern Mediterranean.

The event itself can be established by accessing an ephemeris for the date of March 23, 686 BC. The year of 686 BC is correct. It is specifically noted by Legge in *The Ch'un Ts'ew and The Tso Chuen (The Spring and Autumn Annals translated AD 1872)*. The other source is from the *Annals of the Bamboo Books*, and was calculated by Biot in the 19th century as 687 BC and is correct if this date was meant to be in astronomical notation, in which case it is equivalent to 686 BC in Julian notation.

To further confuse the issue, all the researchers were looking for Mars as an agent. It turns out that it clearly is Mercury instead. Mercury was almost directly between the Sun and Earth on March 23, 686 BC (Julian). As expected, this only happens when the Earth's orbit crosses the equatorial plane of the Sun - - thus at or near the equinox, on March 29, Julian. On March 23 the Sun and Mercury are displaced 7 degrees in azimuth, but only 2 degrees in altitude.

Additionally, I should point out that the shock from Mercury happened a year before the dome of the stars shifted in 685 BC, so that at this time the Sun stood directly below the Pleiades (rather than at the beginning of Pisces). Polynesian myths deal with a rat God who chewed through the nets of the Pleiades. In the afternoon, Mars stood in the sky, below the altitude of the Sun and to the east. The Pleiades were high in the south sky, but could not be seen. Mars should be understood as being within the orbit of Earth at this portion of Mars's orbit. This places Mars much closer to the Sun in the sky as seen from Earth than an ephemeris program will show.

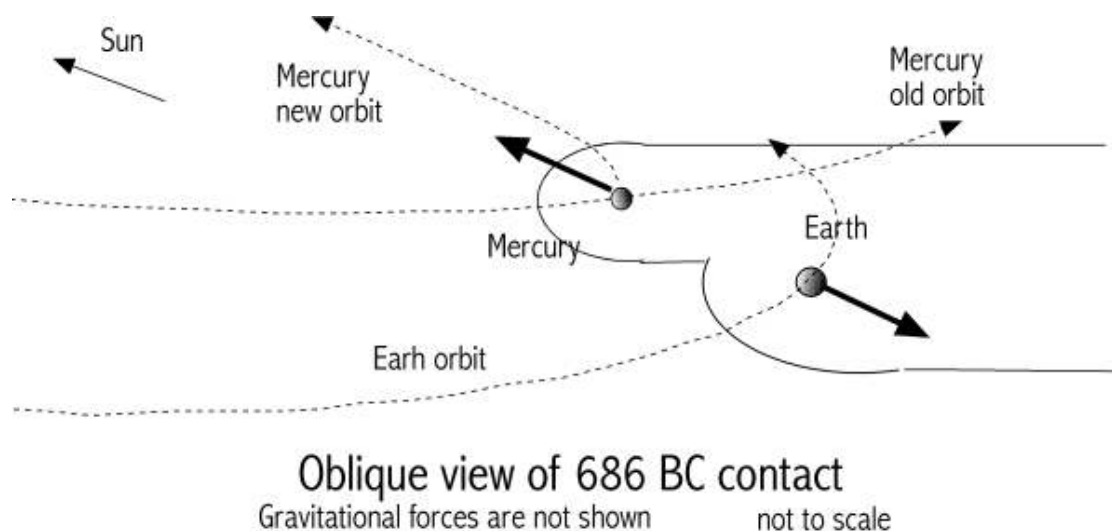
With the placement of these three planets (Venus is the third) all in the same quarter of the sky with the Sun, the American Plains Indian tale of the snaring of the Sun by Coyote, and the rescue by a mouse, starts to make sense.

Certainly it would seem that a plasmasphere tail from Mercury extending 57 million miles (92 million km) to Earth is an uncommon anomaly for a small rocky planet, which, however, it was not: the appearance of Mercury as the Mouse God "Smintheus" in 686 BC suggests that it still had a plasmasphere tail at that time.

But Mercury may have been much closer. If, as North American Indians hold, Mercury blotted out the Sun, it would have been between a half million and one-quarter million miles from Earth to be the right size at the time it eclipsed the Sun. Mercury is about the size of the Moon. However, with an atmosphere and a coma in glow mode, it would have been much larger in diameter, and thus the distance between Earth and Mercury could have been much greater. At any rate, it would mean that Mercury's orbit was radically different at that time from today, as I have maintained in earlier text.

I should also point out that the "look of a mouse" has to be due to a visible tail pointing away from Mercury after it no longer blocked the Sun. This was seen in the sky by North American Indians as the Sun started to rise up in the sky again -- presumably on the same day and the same afternoon. The tail of the mouse would only show up as Mercury moved out of alignment with the Sun.

The shock felt by Earth was also experienced by Mercury. At a mass of only 1/20th that of Earth, the repulsive electric impulse would have bolted Mercury away from Earth, and displaced Mercury to the much smaller orbit. Today the orbit of Mercury falls entirely within the orbit of Venus, and has the greatest orbital eccentricity of any of the planets. The ephemeris program, which can reasonably (and cautiously) be used in era before 685 BC, might produce a considerable error for the orbit of Mercury. In fact, four days in this case.



Let me recap the drama. Mercury was headed, I presume, outward bound from perihelion closer to the Sun, when its plasmasphere intersected Earth's plasmasphere. The Sun, Mercury, and Earth all lined up. This lineup had been avoided for a long time. Although Mars crossed Earth's orbit at the level of Earth, and thus came within Earth's plasmasphere, I suspect Mercury had always passed above Earth, clearing it by perhaps 300,000 miles (483,000 km), the size of Earth's plasmasphere.

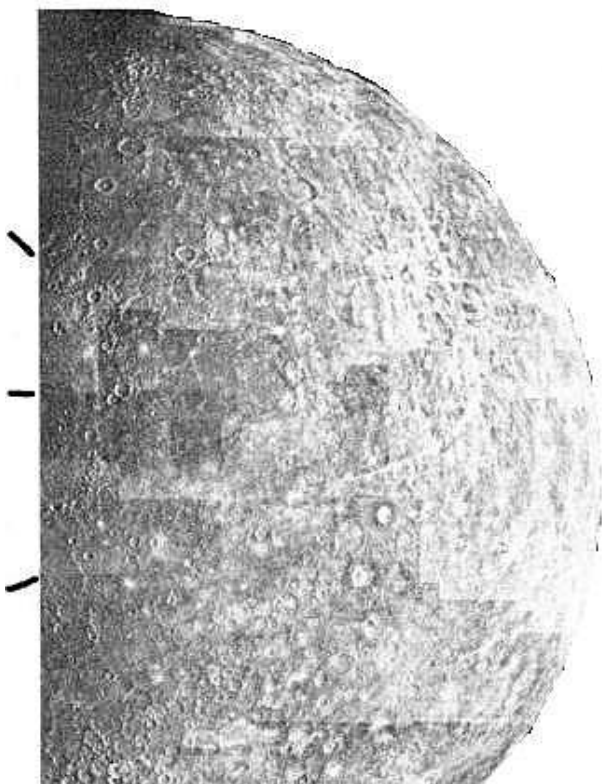
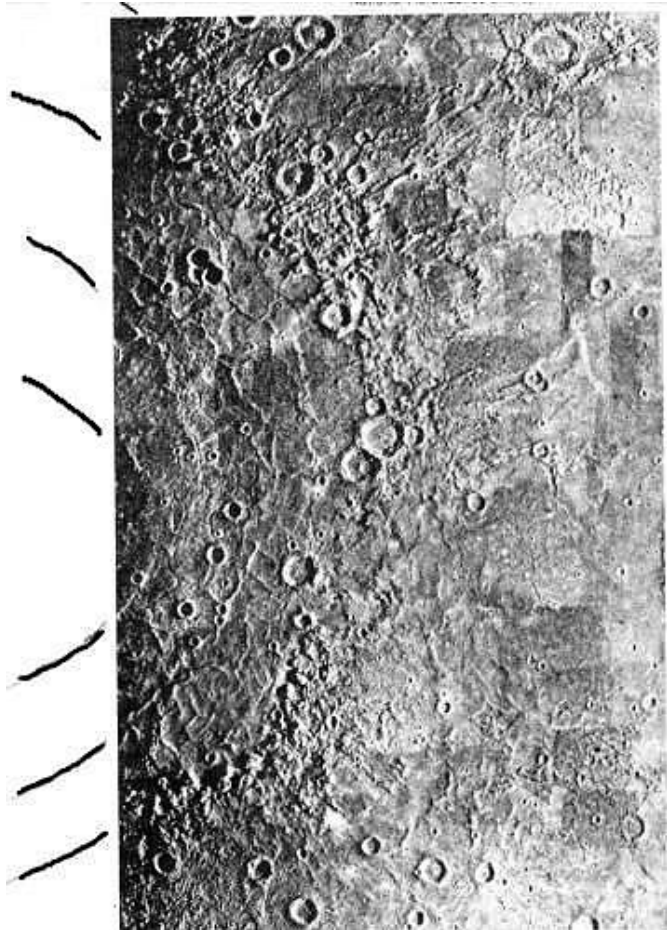
Mercury was whacked with a repulsive shock and shoved in the direction of the Sun. Since Mercury crossed Earth's orbit at the level of the Sun's equator, it may have been forced into a completely changed orbit -- with a zero inclination to the Sun's equator, which is its inclination today. Only the forward motion of its original orbit kept it from falling into the Sun. I have in the text detailed that this event probably constituted the burning tower remembered throughout the world. American Indians recall that prairies and plains also burned in the southwest. The Polynesian saw a rat. A few hours later Sennacherib's army met with disaster.

If we go by Mercury's present orbit, which at aphelion is 51,000,000 miles (82,000,000 km) from Earth, then it could be suggested that this was the separation when electric contact was made. Mercury not only shocked Earth, but also may have changed the Earth's orbit some small amount, reducing it to 365.24 days -- the current value. Since this should have shown up in the Mesoamerican Tzolkin calendar, but did not, it would seem that the change made to Earth's orbit was limited to changing the shape (the eccentricity) of the orbit. This would not change the orbital period.

The Caloris Basin of Mercury

At first, on seeing the Caloris Basin of Mercury, I wondered if in 686 BC Mercury might already have been standing still, that is, rotating the Sun like a moon, always showing the same face to the Sun, or at best rotating very slowly. Like almost all the satellites of the planets, its spin may have already been reduced to synchronous rotation about the parent planet, in this case, the Sun. Today Venus has achieved that status also. The Earth is slowing its spin at a rate of one second per year, and will be the next to come to a standstill.

I then realized that the Caloris Basin is located at the equator of the planet. As I mentioned earlier, a shock to the equator only shoves a planet over in space. This is motion "in translation" and thus there is no gyroscopic reaction torque induced, and no corrective motion is started. So the impact mark would be circular, and not have the typical leading and lagging edge markings that impact marks on Earth have.





[Images: Left: Caloris Basin.
Right: Caloris Basin location on Mercury. After JPL, 1975.]

The Caloris Basin of Mercury is located at the equator and occupies somewhat over 30 percent of Mercury's diameter. Thought to be 800 miles (1,300 km) in diameter in 1975, it was measured at 963 miles (1,550 km) in January, 2008. Caloris is mostly a flat plain with what looks like circular lava fields. Caloris is additionally ringed with circular sets of mountains, and there is an antipodal location where the shock waves converged to break up the crust.

If this is the mark of a collision with an asteroid, then it is the largest impact crater in the Solar System. If this had been due to an asteroid, the impact should have obliterated Mercury and removed the fragments entirely from the Solar System. If it was caused by electric force between Mercury and Earth in 686 BC, then the marked circles seem almost too small.

In addition to the fact that the surface of Mercury falls away rapidly from the center of the impact, thus causing only sliding damage at the periphery (mountains), the electric field at Mercury would have been radial, and thus similarly would fall away from the center. At the edges of the basin only a shoving movement of the crust would have been experienced.

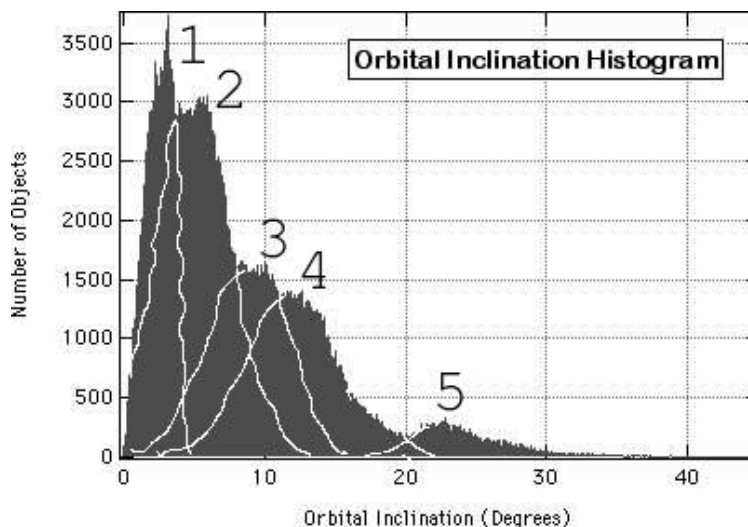
A year later, in 685 BC, the Sun went into high activity, and Venus and Mercury blazed like suns. Every surface feature of Mercury was overlaid with cathode burn marks -- or "meteor impacts" as astronomers call them.

Endnotes

Note 1 --

A frequency plot of orbital inclinations (see below), which hides the information of the ten gaps where there are no asteroids, suggests that five planets may have been destroyed. The plot seems to consist of five superimposed Gaussian distributions. A distribution of orbital inclination is the most likely graphical representation which would more or less preserve the original *in-situ* locations

of the parent bodies. Considering the sparsity of objects in the asteroid belt, I feel comfortable in plotting these Gaussian distributions on top of each other.



[Image: "Histogram of the orbital inclination of objects in the asteroid belt." (Data: [ftp.lowell.edu/pub/elgb/astorb.html](ftp://ftp.lowell.edu/pub/elgb/astorb.html). Plotted at case.edu/sjr16/) Additional graphics added.]

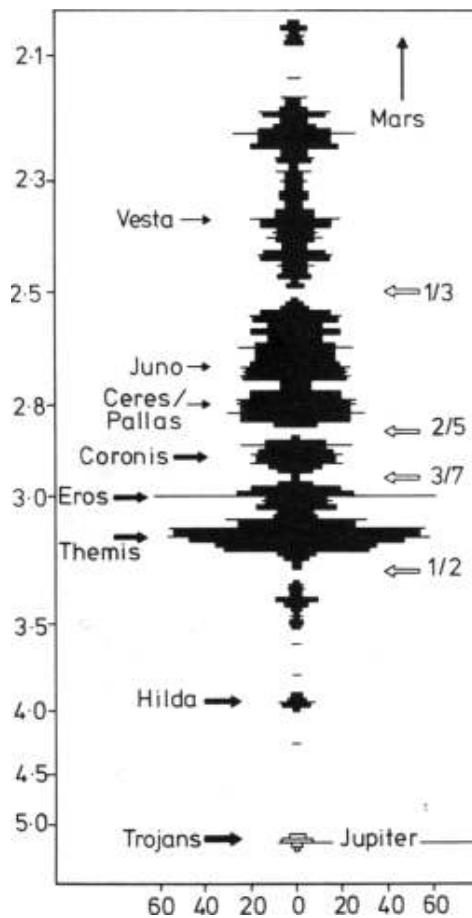
Tom Van Flandern has suggested that the meteorites fallen to Earth (constituting a sample of the contents of the Asteroid belt) represent at least 3 or 4 planets.

Note also the extent of the orbital inclinations. By comparison, planetary orbits vary only seven degrees from the ecliptic. Although the *mode* of the distribution of the asteroids is at about 4 degrees, the *mean* is located at about 8 degrees. There are secondary peaks at 9, 12, and 23 degrees. It is, at any rate, not a single Gaussian distribution.

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Note 2 --

Another graph of the distribution of asteroids, below, based on some 4000 objects known by 1950. Please note that the vertical axis is not linear. This exaggerates the asteroids closer to Mars. The horizontal axis shows the number of known objects at the respective location. The gaps can be clearly seen.



[Image: Asteroid distribution with distance from the Sun in AUs.
After Zdenek Kopal "The Realm of the Terrestrial Planets" (1979).]

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Note 3 --

orbital resonances for various locations of Jupiter								
approx asteroid orbit [AU]	0.50 AU orbit	0.70 AU orbit	0.90 AU orbit	1.10 AU orbit	1.30 AU orbit	1.50 AU orbit	1.70 AU orbit	1.90 AU orbit
1.78	6.72	4.05*	2.78	2.05*	1.60	1.29	1.07*	0.96
1.91	7.46	4.51	3.09*	2.28	1.78	1.44	1.19	1.01*
2.06	8.36	5.05*	3.46	2.56	1.99*	1.61	1.33	1.13
2.26	9.61	5.80	3.98*	2.94*	2.29	1.85	1.53	1.30
2.50	11.18	6.75	4.63	3.43	2.67	2.15	1.78	1.51
2.70	12.55	7.58	5.20	3.85	2.99*	2.41	2.00*	1.69
2.82	13.39	8.09*	5.55	4.10*	3.19	2.58	2.14	1.81

2.96	14.40	8.70	5.96*	4.41	3.44	2.77	2.30	1.94
3.03	14.92*	9.01*	6.18	4.57	3.56	2.87	2.38	2.01*
3.28	16.80	10.14	6.96*	5.15	4.01*	3.23	2.68	2.27
* -- near whole-number values								

The resonances may be calculated from Kepler's third law which defines the relationship between the period of an orbit and the radius of an orbit, as follows:

$$(T_{\text{Asteroid}} / T_{\text{Jupiter}})^2 = (r_{\text{Asteroid}} / r_{\text{Jupiter}})^3$$

The asteroid belt period, as a fraction of multiples of the period of Jupiter is found by using 1 for the period of Jupiter and unit AUs for the orbital radiuses:

$$T_{\text{Asteroid}} = \sqrt{(r_{\text{Asteroid}} / r_{\text{Jupiter}})^3}.$$

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Note 4 --

That Earth was not kicked out of the domain of Solar System remains somewhat of a mystery. All life on Earth would have come to an end. In addition to suggesting that the Earth was simply locked out of the reformed plasmaspheres when Saturn and Jupiter met, we could also follow Tom Van Flandern, who makes the claim, in *Dark Matter, Missing Planets and New Comets* (1999), for a "sphere of gravitational influence" for planets and objects in space, which under normal circumstances extends to about 100 planet diameters from the primary. Objects which are within this sphere (and which do not exceed escape velocity with respect to their primary) will remain (and travel) with the primary. Garbage jettisoned from space ships reacts this way, it just floats along with the ships. A number of conditions are able to change and negate this condition; the primary condition being the presence of another nearby large mass.

The point of release of Earth would constitute the aphelion of its (new) orbit around the Sun -- the location furthest away from the Sun.

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Note 5 --

See the Appendix "Change in the Axis" for notes on Dodwell's 25.2 degree inclination. See the Chapter "The Popol Vuh" for additional discussion on the Blowgunner Pot.

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Note 6 --

The separation distances are from the tangent of the differences in the angles, multiplied by the assumed distance to the Sun, where the tangent is defined as $\sin () / \cos ()$:

$$\text{vertical distance} = 0.7 * \text{AU} * \sin (\text{angle}) / \cos (\text{angle}),$$

Here we are using 0.7 AU as the location and 93 million miles for one AU. To obtain the distance, for example, between Uranus and Saturn:

$$0.7 * \text{AU} * \sin (2.49-0.77) / \cos (2.49-0.77) = 1,954,865 \text{ [mi] } (3,146,000 \text{ km})$$

Adding 10 million miles to 0.7*AU makes little difference in the vertical separation distances, as I have mentioned earlier. The reader will also note that the calculations include a shortcut in that it is assumed that the repulsive forces are directed on a radius line from the Sun, instead of being directed from Jupiter. This also will make almost no difference.

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Note 7 --

I have not done the calculations for an exchange of KE (kinetic energy) involved, or for an exchange of momentum. Electric energy could be at cause also, and there are some hints from recent measurements, as follows: Since 1973 it has been repeatedly noticed that whenever Earth experiences a massive coronal mass ejection from the Sun, the Earth's rotation suddenly decreases, although only by nanoseconds. The speed of rotation increases again over the following few days, at a slower rate than the initial decrease in rotational speed, and returns to normal.

The process of slowing down and regaining speed thus seems to result from a sudden change in the coulomb charge of Earth (intercepting solar protons), followed by a reduction of the surplus charge over the following days through the normal leakage out to space away from the Sun along the Earth's plasmasphere tail.

The spin of the Earth is decreasing currently. The international atomic clock, which determines the length of the day for Earth, has been adjusted by thirty seconds since 1972. The Earth's rate of rotation thus has slowed 30 seconds in

32 years -- about a second per year. This is certainly much more than the nanosecond deviations experienced with the occasional coronal mass ejection. Extrapolating one second per year to the time since 3147 BC, results in a calculated loss of 1.4 hours. Although this represents an extreme and probably illegitimate extension of the data, it confirms my supposition that Earth (and also Mars) today spin at the same rate, or nearly the same rate, as before the breakup of 3147 BC, and also suggests that Earth and Mars both rotated at about 24 hours per day before 3147 BC. The average orbital distance from the Sun for Earth and Mars has not changed all that much.

Tim Thompson contests this as a young-earth-creationist argument (<http://www.tim-thompson.com/young-earth.html>), although I have no idea what he is talking about.

In the last 25 years, Saturn has slowed its rotation from 10 hours and 45.5 minutes (1982) to 10 hours and 39.3 minutes (2004) -- about six minutes, or an average of 17 seconds per year. This data is based not on the rotation of its cloud cover, but on the rotation of its magnetic field. This is an astoundingly large amount, and difficult to comprehend and explain in astrophysical terms.

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Note 8 --

I am at a loss to explain how the inclination of Mercury's orbit could have changed in 686 BC.

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Note 9 --

The White (and Red Crown) of Egypt depict Mars in the stream of a plasma connection in glow mode from Saturn, probably at a late date in the "Era of the Gods" -- after Saturn had ceased its initial nova condition in arc mode. The White Crown shows the plasma stream frontally lighted by the Sun and thus hiding Mars. The Red Crown shows the same stream at night, back lighted by the Sun (and casting a partial shadow) with the red surface of Mars showing through the plasma stream.

If we assume that the White or Red Crown of Egypt represents approximately the size of a human head and seen at arm's length (which is, of course, very subjective), then it might have subtended about 2.5 to 3.0 degrees (the angle subtended by a hand at arm's length).

On the basis of the above conjecture, it could be suggested that the upper bulb of the White Crown, representing Saturn, would be about 1.5 degrees wide visually (half the width of the larger Horus bulb). That clearly places Saturn 2.8 million miles (4.5 million km) from Earth.

$$72000 * (\cos (1.5) / \sin (1.5)) = 2.75 \text{ million miles}$$

The same reasoning, applied to Mars in its lowered position, reveals a distance of about 80,000 miles (129,000 km) between Earth and Mars at the closest approach:

$$\text{arctangent } (4200/80000) = 3.0 \text{ degrees.}$$

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Note 10 --

At two AU the distance would amount to...

$$2 * \text{au} * \sin (2.49-1.85) / \cos (2.49-1.85) = 2.1 \text{ million miles (3.4 million km).}$$

Mars would have been much closer to Earth. This might, in fact, be suggested from the *King List*, where the last descent to Earth of Mars was only 80 years prior to 3147 BC, half of the average of 141 years of the previous seven "reign lengths."

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Note 11 --

Electrons in the Van Allen belts of the Earth, a toroidal ring of plasma a few hundred miles to a thousand miles above the equatorial regions, will move to different locations over distances of a thousand miles in only a few seconds when a lightning strike is experienced far below in the atmosphere of the Earth (the last few miles above the surface). We could expect the same rapid reconfiguration when two planetary plasmaspheres intersect. A thousand miles in two seconds ("a few") represents a speed on the order of 2 million miles per hour. This is actually equal to the speed of the Solar Wind in the region of space near Earth today.

Mars and Mercury may have remained within the plasmasphere of Saturn after 3147 BC because Mars, having been in violent discharge from Saturn at least

since the Gravettian, 40,000 years ago, must have been at a potential partially equal to that of Saturn. I can also place Mercury in the polar configuration late in the Gravettian (circa 24,000 ya) or in the Magdalenian (17,000 to 14,000 ya), but certainly long ago.

The plasmasphere which reformed around Saturn would have no cause to exclude Mars from its enclosing bubble. Only on arriving at the asteroid belt, would the plasmasphere of Saturn have radically reconfigured itself to match conditions of the conducting dust and rocks nearby, resulting in the exclusion of Mars and Mercury from Saturn's electric influence. Gravitational influences were likely never a consideration.

This scenario seems reasonable in accounting for the release of Mars (and Mercury) 80 years after 3147 BC, as well as accounting for the swarm of dust and asteroids which accompanied Mars for the next 3000 years. It would mean that Mars's initial orbit (as also for Mercury) was very elliptical, with aphelion beyond the initial edge of the asteroid belt. The scenerio proposed by Patten and Windsor also suggests aphelion within the asteroid belt.

[\[return to text\]](#)

Note 12 --

The raven might have been Saturn, with its rings forming the wings. But I doubt it.

[\[return to text\]](#)

Note 13 --

There are other "births" in Greek mythology. One records the birth of a God (planet) from Zeus's thigh -- thus the planet was first noticed as it appeared from behind the lower mountain shaped coma. This likely is the image of the mummy of Osiris with his erect penis. In Greek mythology the erect penis will turn out to be Dionysus. Dionysus belongs to the class of Gods who are "twice born" -- where the second birth for Mercury happens in the seventh century BC. In this case the second birth is the fiery appearance in 685 BC.

[\[return to text\]](#)

Note 14 --

The reader should take this statement as an admission that, first, we know only a little of the interactions of plasmaspheres, and second, that the effects are

neither as clear-cut nor as discrete as presented here.

[\[return to text\]](#)

Note 15 --

I initially placed the event of 2349 BC in Central Asia. A map inspection reveals two semicircular configurations of mountains, both with the open (flat) side pointing north or northeast. One is identified at the lower edge by the rim of mountains of the Himalayas, with Tibet as the flat area of the basin. The Tibetan plateau is known to be of "recent" origin. In fact, it is held today by geologists that both the "uplift" of the Himalayas and the Tibetan plateau are as recent as "after the end of the last ice age," thus more recent than 14,000 years ago. This largely argues against the plate tectonics notion of the Indian subcontinent colliding with Asia some sixty million (60,000,000) years ago, although the current Himalayas do constitute the raising of a previous set of more modest mountains.

The other large impact basin is further north, with Lake Baikal included in the curvature. I would suggest that this might be the impact of 2193 BC. Since we are aware of a long period of reduced light (reduced agricultural production) starting in 2193 BC, this seems like a most likely location which would provide a path for a continental lightning strike and extensive forest fires.

Since the lightning strikes in 2349 BC were plasmoids which apparently dissipated at the equatorial rings or the ionosphere, there might have been very little of forest fires at that time.

I should point to an article by Donald W. Patten and Samuel R. Windsor, "Catastrophic Theory of Mountain Uplifts" in *Catastrophism and Ancient History* (1991), which assigns the uplift of the Himalayas and other mountain ranges to close passes of Mars in the 8th century BC. I'll reluctantly assent to some mountain ranges, but not the Himalayas (nor the Andes), since the overall structure of these mountains and the adjacent areas do not easily conform to the geological mechanics envisioned by Patten and Windsor.

[\[return to text\]](#)

Note 16 --

The Earth as a gyroscope is not equivalent to a toy top set on a table, and does not react the same way to an impulse. (An "impulse" is the momentary

application of a force.) There is absolutely no comparison between a toy top or toy gyroscope and a sphere spinning in space without any support.

The top set on a table is subject to a "normal force" directed up from the bottom, and the force of gravity directed down along the same axis. As it is nudged, the force acting through its center of gravity is offset from the point of contact at the bottom. This constitutes a "couple" (a torque) acting permanently around the horizontal center of the top. The reaction torque resulting from this will set the top into precession. And it will be permanent, for the leaning of the top is permanent. Nudge it more and it will turn upside down instead. The top will do this when the force of sliding friction (about 20 percent of the normal force) has been overcome.

Until a top is removed away from the effect of gravity, and off the table, it will not act like Earth under the influence of an impulse. The notion of the Earth turning upside down -- expressed repeatedly by Velikovskian researchers and savants who apparently have never taken elementary physics or mechanics in high school -- is based on false analogies. I cannot believe that these articles were ever printed in the Velikovskian journals.

[\[return to text\]](#)

Note 17 --

Because the contact in 2349 BC happened at the fall equinox, it is amenable to a simple analysis. At the fall equinox the axis of the Earth was tilted 30 degrees "forward" along the orbit. The center of impact may be estimated to be about 40 degrees north of the equator. The hit occurred when the impact point faced the Sun. Thus the impact was not directed through the center of Earth, but on a line 30 degrees above the center and through the Earth. Thus the first reaction was a tilt of the Earth to the northeast.

The gyroscopic reaction would immediately change to a movement of the Earth's axis away from the first tilt. The two motions would describe a counterclockwise circle of the Earth's axis as seen from above. This moved the exterior force geographically toward the southwest.

[\[return to text\]](#)

Note 18 --

I suspect that the orbital period of Venus might have been on the order of 240 days initially, when the Earth's period was also 240 days. With the eccentricity

of Venus at 0.15 and the eccentricity of the Earth at 0.10, the orbit of Venus would certainly have overrun the orbit of Earth.

[\[return to text\]](#)

Note 19 --

The Moon's orbit, which describes a rosette pattern at the same distance from the Sun as the Earth, but at a slightly different orbital inclination, precesses in only 19 years to repeat its positions with respect to Earth and the background stars.

[\[return to text\]](#)

Note 20 --

I should note that only for far distant interactions would two planets have to line up with the Sun, for the Sun's electric shadow of the inner planet determines the location of the planet's plasmasphere tail. But planets could interact electrically at much closer distances if two plasmaspheres brushed against each other in passing. This apparently happened with Mars and Earth for 300 years starting in 3067 BC, again for a period after 1935 BC, and the last time in 806 to 687 BC.

In 776 BC Venus seems to have made electric contact with Mars but not with Earth. Note that the number of closely spaced approaches seems to have decreased over time, as did the severity of the electric contacts.

[\[return to text\]](#)

Note 21 --

I had originally (years ago) only considered gravitational interaction for the displacement of the Earth's orbit in 1492 BC, and thus had Venus pass on the night side of Earth. Velikovsky, however, suggests that Venus passed on the day side of Earth, based on textual evidence. This is an interesting concession, since it would discount gravitational interactions altogether.

Velikovsky hoped that magnetic interactions would do the job. That is doubtful. But it works even better if electric interactions are considered. The interaction would have to be during daylight, at about noon, and near the equinox. If we allow for the repulsive forces of the electric fields, which would become "visible" to the two planets during a plasmasphere contact, then the Earth would be "shoved" to a larger orbit instead of being gravitationally or magnetically

"pulled."

[\[return to text\]](#)

Note 22 --

Greater accuracy is achieved with the use of a public domain calendar conversion program written by John Walker, which allows conversion between the Maya Long Count (with the Tzolkin and Haab days) and the Julian calendar and Gregorian calendar. I use a modified version which allows use of either the August 11 or the August 13 correlation.

The advantage of the backward-extended Gregorian calendar is that it represents solar years, although the days of the year will be out of phase with reality. The Julian calendar, based on Julian days, diverges progressively from solar years.

[\[return to text\]](#)

Note 23 --

Additional data brought to bear on this event by Velikovsky was a "reference to some celestial event of 776 BC" from a secondary source referring to the *Shih King* (the Confucian *Book of Odes*). However, the *Book of Odes* lists only an eclipse of the Sun. As a book of collected poetry the *Shih King* is not really concerned with celestial events.

James Legge translates the passage of the *Shih King* as:

"At the conjunction (of the Sun and Moon) in the tenth month, on the first day of the Moon, which was Hsin-mão, the Sun was eclipsed."

Legge further notes:

"This eclipse is verified by calculation as having taken place in B.C. 776, on August 29th, the very day and month assigned to it in the poem."

It is only curious that this is the only "celestial event" which is listed in a book of poetry, and it may be a coincidence that this is in the same year as the event of the ballgame.

By my retrocalculation the eclipse happens in the late afternoon on September 6th, 776 BC, on the Julian calendar, which is astronomical year -776 for the ephemeris program I am using, and August 29, -775, on the Gregorian calendar,

matching Legge's date quoted above as "B.C. 776, on August 29th." Of course both my ephemeris program and the savants of the late 19th century are using the same assumptions about the constancy of the Solar System. But I do not think this was simply a solar eclipse by the Moon, for the date is 30 years before 747 BC, and thirty years before the Moon's orbit reduced enough to actually cause eclipses to be seen on Earth.

The *Encyclopaedia Britannica* reports:

"A date of 776 BC was formerly adopted for such an event, but modern computations show that no solar eclipse in that year was visible in China. A revised date of 735 BC has been proposed."

I disagree. A solar eclipse was certainly visible in Peking on the date above, although perhaps in the late afternoon. The *Encyclopaedia Britannica* may also have reference to a reading of the first stanza stating that the eclipse of the Sun followed an earlier lunar eclipse. An earlier lunar eclipse would have been 14 or 15 days earlier, at night. On August 22 (Julian) at 1:45 AM -- not on September 6th -- the Moon is on the ecliptic (in line with the Earth and the Sun) and 12 hours removed from the location of the Sun. That defines a lunar eclipse. The *Encyclopaedia Britannica* continues with:

"Throughout the subsequent thousand years or so, lunar eclipses were hardly ever reported in China -- in marked contrast to solar obscurations, which were systematically observed."

What Velikovsky failed to note from his secondary source, is that in the third stanza of the ode mention is made of lightning and geological disturbances, including the lifting of streams and valleys.

*Grandly flashes the lightning of the thunder.
There is a want of rest, a want of good.
The streams all bubble up and overflow.
The crags on the hill-tops fall down.
High banks become valleys; Deep valleys become hills.
Alas for the men of this time!
How does (the king) not stop these things?*

I find it very interesting that the "solar eclipse" is associated with catastrophes. I would assign the movement of hills and river and the lightning strike to a close passage of Mars (or mercury), but the year 776 BC in China, based on

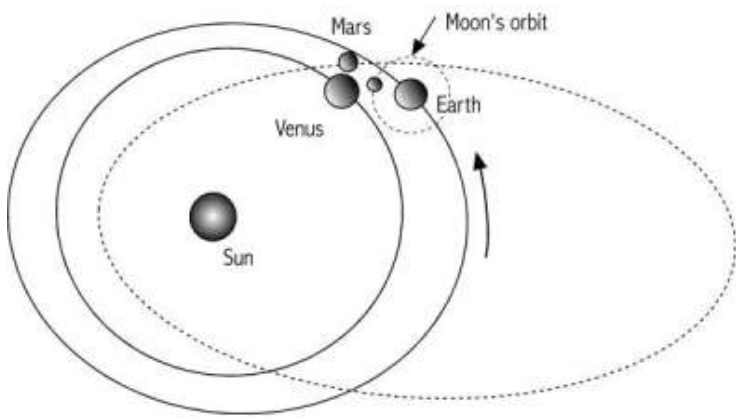
astronomical data, does not match the year 776 BC in the Eastern Mediterranean, based on chronological data. It is off by four years, which actually may not be a problem, since the first Olympic Games could have started either 4 or 8 years after the event.

It should also be realized that texts in China, dating from the seventh century BC, were often corrected, even as late as AD 900 or AD 1000. Others have suggested this, and I have noted this for the entry concerning the calendar adopted by Yao as described in the *Annals of Shu*. It is possible that the lunar eclipse followed by a solar eclipse were retrocalculated at a late date and inserted to account for the disturbances noted in the poem. I believe that no lunar or solar eclipses were experienced anywhere (except perhaps in the tropics) before 747 BC.

[\[return to text\]](#)

Note 24 --

The following lists the coincidental inferior conjunctions of Mars and Venus with Earth, between 800 BC and 700 BC. The angles listed are measured from the Sun, and are taken from printouts of visual best approximations of "close passes" of Venus and Mars.



Earth, Mars, Venus conjunction of 776 BC

[Image: Mars, Earth, Venus on February 17, 776 BC; Mars shown within Earth's orbit. Illustartion by J. Cook.]

year*	angle	interval
-------	-------	----------

800	17	deg	6
793	11		7
787	24		6
780	10		7 <-- 776 BC
774	26		6
768	21		6
761	15		7
755	28		6
748	20		7
744	28		4
736	28		8
729	25		7
716	22		13
712	20		4
* corrected by 4 years			

The corrected date corresponding to 776 BC is marked. I have excluded conjunctions of 30 degrees or more, some of which happen at odd intervals of two, four, or five years. The date of February 25 -780 Julian is February 17 -779 Gregorian, and equal to the year 776 BC in Eastern Mediterranean chronology.

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Note 25 --

Velikovsky mentions, in the unpublished "The Assyrian Conquest":

"It is often asserted that the Era of Nabonassar was Ptolemy's invention; but it is a fact that one of the most important of the Babylonian historical texts, the so-called 'Babylonian Chronicle' (B.M. 92502), starts with the reign of Nabonassar, or the year -747. See H. Winckler and J. N. Strassmeier, Zeitschrift für Assyriologie, II (1887), pp. 163-168. Cf. D. J. Wiseman, 'Chronicles of Chaldean Kings' (London, 1956), pp. 1-2."

-- Immanuel Velikovsky, from "Haremhab's Contemporaries" at

[\[http://www.varchive.org\]](http://www.varchive.org)

[\[return to text\]](#)

Note 26 --

Velikovsky quotes from J. de Costa, *The Natural and Moral History of the Indies* (1604), that the new year among the Indians of Mexico started on February 26th (supposedly on the Julian calendar, but this is on the Gregorian calendar).

From another secondary source I have information attributed to Bernadino de Sahaguán, in *Historya General de Nueva España* (circa AD 1530) who identified the start of the Aztec year with February 12 (supposedly) on the Gregorian calendar. However, February 12 falls on the Julian calendar, and is equivalent to February 22 on the Gregorian calendar (of the same year). February 22 is five day before February 26. February 22 is here thus the end of the year, with the five extra days following.

[\[return to text\]](#)

Special thanks to J Hafner for questions on the mechanics.

Special thanks to D Vander Ploeg for comments on the orbits.

Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Appendix C: Site Alignments.

This file is linked from the chapter [\["Olmec Alignments"\]](#);
it is primarily data, and well worth skipping.
No metric equivalents in this Appendix.

\$Revision: 42.3 \$ (align.php)

Contents of this appendix: [\[Expected Dates\]](#) [\[Izapa\]](#) [\[Edzna\]](#) Olmec sites: [\[San Lorenzo Tenochtitlan\]](#) [\[La Venta\]](#) [\[Tres Zapotes\]](#) [\[Laguna De Los Cerros\]](#) [\[Cerro De La Mesas\]](#) [\[Remojadas\]](#) [\[Zempoala\]](#) Valley of Mexico sites: [\[Teotihuacan\]](#) [\[Tlatilco\]](#) [\[Tizatlan\]](#) [\[Cuicuilco\]](#) [\[Tlapacoya\]](#) [\[Cholula\]](#) Other: [\[Monte Alban\]](#) [\[Endnotes\]](#)

The following data is the results of an initial investigation. The latitudes and longitudes are from [\[www.geonames.org\]](http://www.geonames.org). They are shown as **{degrees north latitude} -- {degrees west longitude}**. Truncation by Geonames. Locations of ceremonial centers and mountains are shown as **"center:"** and **"marker:"** below.

The angle between a site and a mountain can be found from the arctangent, **arctangent({difference in latitude} / {difference in longitude})**. These are shown below. If the latitude and longitude of the site is used as the first term of the differences, then negative angles denote "north of east" and "south of west."

```

Sun.bas -- SUNRISE and SUNSET

For location? Chicago
For axial inclination? 23.5
North latitude of location? 41.88
For Month (Nnn)? May DOM? 31

-- Solstice is on June 21--
Dec Jan Feb Mar Apr May Jun | Jun Jul Aug Sep Oct Nov Dec
  11  31  28  31  30  31  20 -  9  31  31  30  31  30  20
   171 140 112  81  51  20   9  40  71 101 132 162

May 31 (days after/before solstice:) 20
Moon elevation of sun is 70.24283 degrees.
sunrise at 30.38469 degrees No or So of East
Sunrise at approximately 4 : 35 am,
Sunset at approximately 7 : 25 pm LMT
Length of the day 14 hours 50 minutes

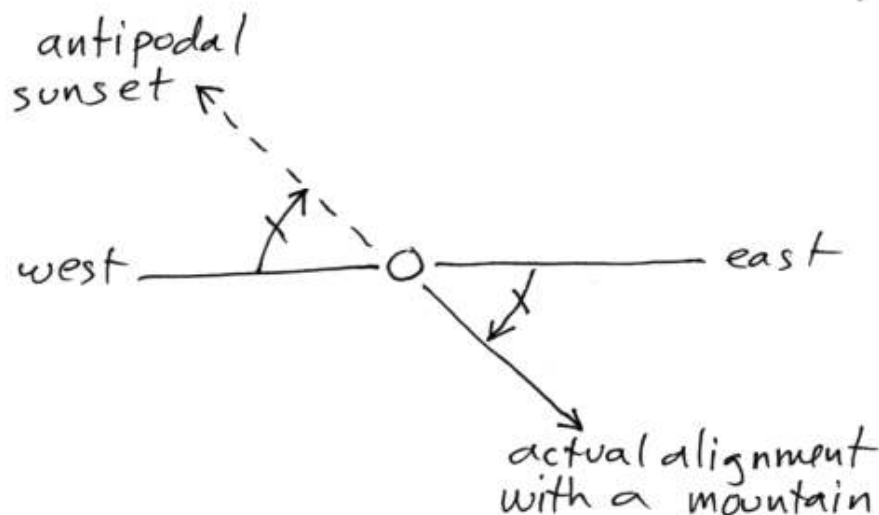
```

[Image: sun.html output example. After K. Cook.]

The dates for various angles to the setting or rising Sun at the horizon are from a javascript program [\[sun.html\]](#), available locally, which can be set for different axial inclinations and latitudes. The angles shown are for sunrise, even if listed for sunsets. Sunsets will differ from sunrise by about 0.25 degrees in the part of the year closer to the equinoxes, with a virtually imperceptible difference as the Sun nears the solstices. Documentation of "sun.html" in the following endnote. [\[note 1\]](#)

The distance between two locations can be found approximately from the latitudes and longitudes also, using the Pythagorean theorem, and using 69 miles per degree of latitude and, for central Mexico at 20 degrees latitude, an average of 65 miles per degree of longitude, as $\text{sqrt}((69 * \{\text{delta latitude}\})^2 + (65 * \{\text{delta longitude}\})^2)$. Distance between a center and a mountain is shown as **"remove:"** below.

The line of sight distance of a mountain can be found from $\text{sqrt}(2 * 4000 * h)$, where "h" is the height in miles. This can be closely approximated from $\text{sqrt}(2 * 4000 * (3.25 * H) / 5280)$, where H is the height in meters. The figure "4000" is the radius of the Earth in miles. The figure "3.25" is the number of feet per meter. Line of sight distances between a center and a mountain is shown as **"viewed:"** below. The line of sight is for sea level. Intervening hills and raised terrain might block the view.



[Image: Antipodal alignment example; plan view. Illustration by J. Cook.]

I am using the term **antipodal** to mean a reverse alignment to a horizon location. The equivalence of angles above and below the east-west cardinal direction could be implied, and would be correct as equivalent, but makes little sense. At a few locations this is used, however.

Expected Dates

To ease the task of reading the following data, let me propose the important dates (horizon locations) which we are looking for (or which have been discovered inadvertently). The angles shown below are for a sunrise or sunset, and thus so many degrees north or south of an east-west axis. The angles shown in the list below are for an "average" latitude of 19 degrees. The actual angles will vary with the latitude of individual sites. These are shown for an axial inclination of 30 degrees and 23.5 degrees, since many sites use either the horizon location for a 30-degree axis or for a 23.5-degree axis, irrespective of what the current axial inclination was at the time the site was founded. The overhead (zenithal) passage of the Sun is also listed below. The dates are all "equivalent Gregorian."

Sunset in Degrees North of West for Various Dates		
For an axial inclination of ...	30 degrees	23.5 degrees
End of era 3114 BC, August 12	19.9 degrees	14.9 degrees
End of era 2349 BC, September 8	6.6 degrees	5.2 degrees
End of era 1492 BC, April 19	15.3 degrees	12.0 degrees
End of era 747 BC, February 28	11.0 degrees	8.6 degrees

Solstice before 685 BC	32.0 degrees	25.0 degrees
Plasmoid start, July 9, 685 BC	30.4 degrees	23.7 degrees
Jupiter plasmoid, July 14	29.4 degrees	23.0 degrees
Delivery of plasmoid, July 26	26.6 degrees	20.7 degrees
Zenithal, August 9 - 14	20.3 degrees *	
July 23 - Aug 1		20.3 degrees *
* varies with latitude		

In addition to sunsets, the setting angles for the Pleiades after culmination are suggested for some recurring alignment angles, as follows. These are additional to sunset alignments indicating the end of the era in 2349 BC on September 8. These are discussed in the text of the chapter "Olmec Alignments."

- Culmination 685 BC, Oct 8 Gregorian -- 13.0 degrees
- Culmination 600 BC, Oct 10 Gregorian -- 13.6 degrees
- Culmination 200 BC, Oct 14 Gregorian -- 15.8 degrees
- Culmination AD 100, Oct 18 Gregorian -- 17.1 degrees
- Culmination AD 200, Oct 20 Gregorian -- 18.1 degrees
- Culmination AD 400, Oct 21 Gregorian -- 18.7 degrees

The angle of 13 to 14 degrees and the angle of 18 to 19 degrees, correspond to the setting locations for the Pleiades at the approximate dates shown above. These show up repeatedly.

Izapa

center: Izapa (Chiapas), 14.90 -- 92.18				
event	axis 30 degrees date	angle	axis 23.5 degrees date	angle
-----	-----	-----	-----	-----
start 3114 BC era	Aug 11	19.87		15.55*
start 2349 BC era	Sep 8	6.52		5.11
start 1492 BC era	Apr 19	15.01		11.75
start 747 BC era	Feb 28	-10.82		-8.47
solstice	Jun 21	31.16		24.36 ?
Jup flare-up	Jul 9	29.66		23.20
Jup plasmoid	Jul 14	28.73		22.48
Jup strike	Jul 25	25.94		20.30
zenithal passage	Aug 21	15.47*	Aug 11	15.56*

```
* -- alignment found, (*) -- antipodal, | -- site axis
Note: August 11 is used as the start of creation.
```

I have added **Volcan de Agua** in Guatemala which is 3760 meters high, and can clearly be seen from **Izapa**. **Izapa** is located at the base of the volcano **Tacana**. But the site axis (16 degrees e of n, thus 74 degrees n of e) does not point to **Tacana** (69.67 degrees n of e) except as "sort of."

Additionally I have added an alignment corresponding to a site axis which falls 16 degrees east of north. At right angles this points to 16 degrees north of west.

```
Izapa (Chiapas), 14.90 -- 92.18

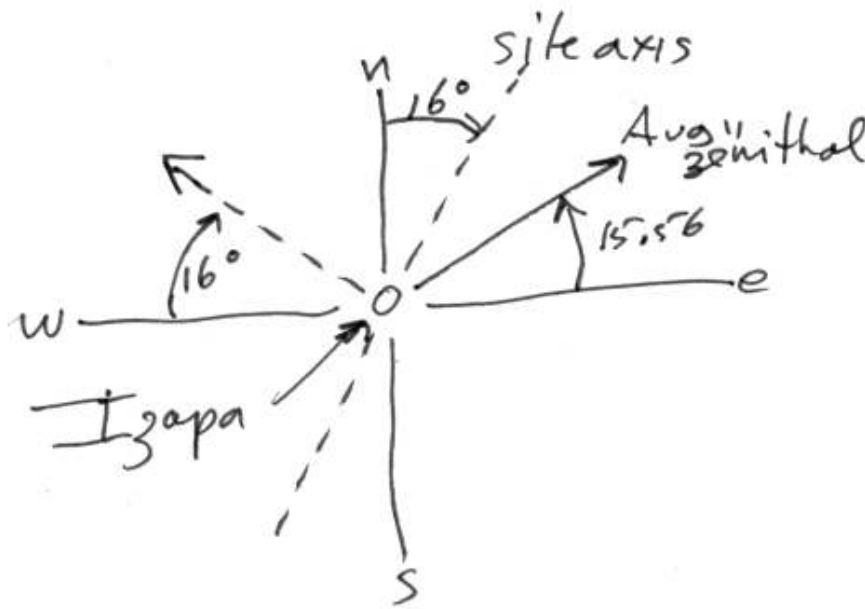
marker: Volcan Tajumulco, 15.034 -- 91.903, 4220 meter
remove: sqrt((69*(14.9-15.034))^2+(65*(92.18-91.9))^2) = 20.4 mi
a((14.90-15.034)/(92.18-91.9))/rad = -25.57 degrees n of e

marker: Volcan Tacana (Mexico), 15.116 -- 92.1
a((14.90-15.116)/(92.18-92.1))/rad = -69.67 degrees (out of limits)

marker: Volcan de Agua (Guatemala), 14.466 -- 90.742, 5280 meters
remove: sqrt((69*(14.9-14.466))^2+(65*(92.18-90.742))^2) = 98 mi
viewed: sqrt(2*4000*(3.25*3760)/5280) = 136 mi
a((14.90-14.466)/(92.18-90.742))/rad = 16.79 degrees s of e

marker: site axis, 16 degrees e of n
At right angle this equals 16 degrees n of w

Note: "a" is the arctangent, here and in following tables
```



[Image: Izapa alignments; plan view. Illustration by J. Cook.]

The Sun passes overhead on August 11 (89.87 degrees above the horizon), rising at 15.55 degrees north of east. Malmstrom uses a latitude of 14.8 degrees north. This results in an alignment corresponding to August 12, where I have August 11.

The alignment at right angles to the site axis points also to a sunset on August 11, at 16.0 degrees (15.56 n of w).

There is no solstitial alignment. The volcano **Tajumulco** is held to represent a solstitial alignment by Malmstrom (and others), but an alignment of 25.57 degrees n of e, is not close to the solstice sunrise which happens at 24.36 degrees n of e. It is off by more than a degree, which at the time of a solstice, causes an error of 15 days.

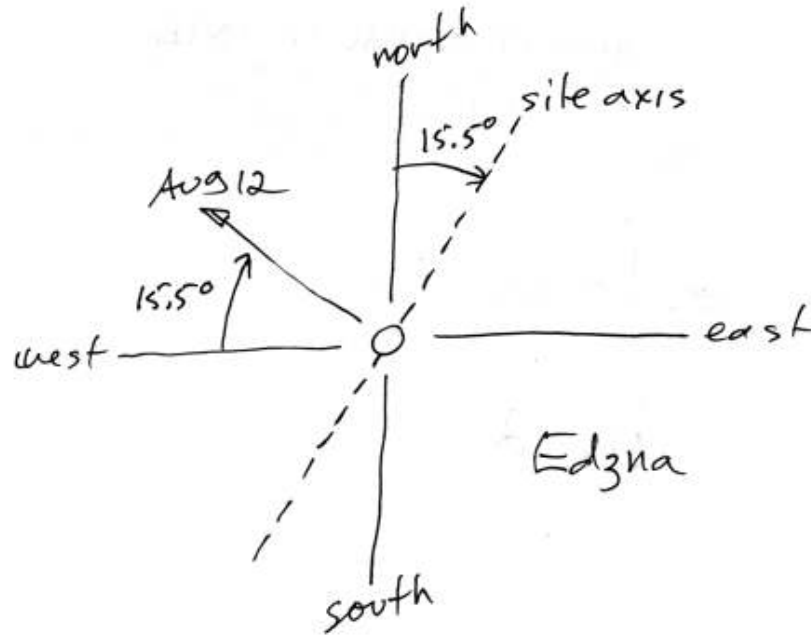
I should note, however, that there is no reliable latitude and longitude for Izapa, and changes of a few percent will change the angles to some of the nearby mountains considerably. Malmstrom used a latitude of 14.8 which is seven miles south of my use of 14.9 degrees.

Edzna

center: Edzna (Campeche), 19.583 -- 90.25

The long axis of the site is aligned 15.5 degrees east of north.

The Sun passes over the site on July 25th.



[Image: Edzna alignments; plan view. Illustration by J. Cook.]

The 15.5-degree alignment is identical to the alignment of the long axis of Teotihuacan in the valley of Mexico and results in sight line between three structures at a right angle to this, which represents a sunset on August 12, 3114 BC (15.6 degrees north of west).

The overhead passage of the Sun is elevated at an angle of 89.96 degrees on July 25th, setting at 20.85 degrees n of w. New Year's Day is July 26th.

Malmstrom lists an additional sightline made at 30 degrees north of west. He identifies this as the most northerly displacement of the Moon. This is correct, for at an "axial inclination" of 23.5 degrees for the Earth plus 5 degrees more for the Moon, this places the angle to a possible horizon location of the Moon at 30.42 degrees n of w.

San Lorenzo Tenochtitlan

San Lorenzo is an extensive site. I have checked data using the latitude/longitude for three included sites, shown below, but am only showing the results for the village of **Tenochtitlan** which seems to strike an average.

The first three sites are within 8.3 miles of each other; **Potrero Nuevo** is 10 miles further south. **Tenochtitlan** is a couple of miles north of the archaeological site, thus about 0.03 degrees of latitude different. The following only considers the location of **Tenochtitlan**.

center: San Lorenzo, 17.666 -- 94.833				
Tenochtitlan, 17.758 -- 94.75 <---				
El Azuzul, 17.733 -- 94.8				
Potrero Nuevo, 17.783 -- 94.58				
event	axis 30 degrees		axis 23.5 degrees	
	date	angle	date	angle
-----	-----	-----	-----	-----
start 3114 era	Aug 12	19.75		15.46
start 2349 BC era	Sep 8	6.62		5.18
start 1492 BC era	Apr 19	15.23**		11.93
start 747 BC era	Feb 28	-10.98		-8.60
solstice	Jun 21	31.67		24.75
Jup flare-up	Jul 9	30.14		23.56
Jup plasmoid	Jul 14	29.19		22.83
Jup strike	Jul 25	26.35		20.16
zenithal passage	Aug 15	18.45*	Aug 2	18.54*
* -- alignment found				

```

San Lorenzo Tenochtitlan, 17.758 -- 94.75

... valley mountains

marker: Nauhcampatepetl, 19.483 -- 97.133, 4282 meters
remove: sqrt((69*(17.758-19.483))^2+(65*(94.75-97.133))^2) = 195 mi
viewed: sqrt(2*4000*(3.25*4282)/5280) = 145 mi
a((17.758-19.483)/(94.75-97.133))/rad = 35.89 degrees (out of limits)

marker: Popocatepetl, 19.033 -- 98.633, 5452 meters
remove: sqrt((69*(17.758-19.033))^2+(65*(94.75-98.633))^2) = 267 mi
viewed: sqrt(2*4000*(3.25*5452)/5280) = 163 mi
a((17.758-19.033)/(94.75-98.633))/rad = 18.17 degrees n of w

marker: Citlaltepētāl (Pico de Orizaba), 19.016 -- 97.266, 5636 meters
remove: sqrt((69*(17.758-19.016))^2+(65*(94.75-97.266))^2) = 185 mi
viewed: sqrt(2*4000*(3.25*5636)/5280) = 166 mi

```



```

a((17.758-19.016)/(94.75-97.266))/rad = 26.56 degrees n of w

marker: Ixtacchuatl, 19.183 -- 98.65, 5230 meters
remove: sqrt((69*(17.758-19.183))^2+(65*(94.75-98.65))^2) = 271 mi
viewed: sqrt(2*4000*(3.25*5230)/5280) = 160 miles
a((17.758-19.183)/(94.75-98.65))/rad = 20.07 degrees

marker: Volcan La Malinche, 19.233 -- 98.033, 4462 meters
remove: sqrt((69*(17.758-19.233))^2+(65*(94.75-98.033))^2) = 236 mi
viewed: sqrt(2*4000*(3.25*4462)/5280) = 148 mi
a((17.758-19.233)/(94.75-98.033))/rad = 24.19 degrees

... coast mountains

marker: Volcan San Martin Pajapan, 18.316 -- 94.8, 1219 meters
remove: sqrt((69*(17.758-18.316))^2+(65*(94.75-94.8))^2) = 38 mi
viewed: sqrt(2*4000*(3.25*1219)/5280) = 77 mi
a((17.758-18.316)/(94.75-94.8))/rad = 84.8 degrees (out of limits)

marker: Volcan San Martin Tuxtla, 18.55 -- 95.2, 1650 meters
remove: sqrt((69*(17.758-18.55))^2+(65*(94.75-95.2))^2) = 62 mi
viewed: sqrt(2*4000*(3.25*1659)/5280) = 90 mi
a((17.758-18.55)/(94.75-95.2))/rad = 60.4 degrees (out of limits)

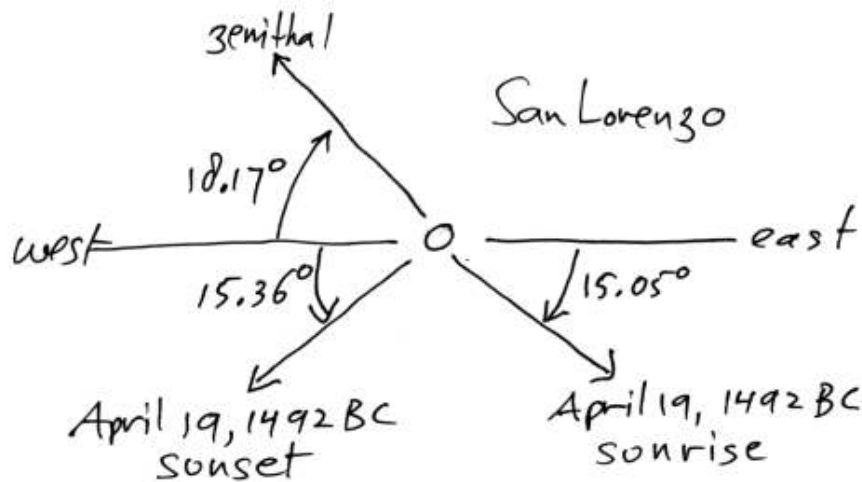
marker: Cerro Santa Martha (Veracruz), 18.35 -- 94.855, 1680 meters
remove: sqrt((69*(17.758-18.35))^2+(65*(94.75-94.855))^2) = 41 mi
viewed: sqrt(2*4000*(3.25*1680)/5280) = 91 mi
a((17.758-18.35)/(94.75-94.855))/rad = 79.9 degrees (out of limits)

marker: Cerro San Martin (Queretaro), 20.745 -- 99.970
remove: sqrt((69*(17.758-20.745))^2+(65*(94.75-99.970))^2) = 397 mi
viewed: ??
a((17.758-20.745)/(94.75-99.970))/rad = 29.78 degrees

marker: El Chichon (Chiapas), 17.35 -- 93.233, 1060 meters
remove: sqrt((69*(17.758-17.35))^2+(65*(94.75-93.233))^2) = 102 mi
viewed: sqrt(2*4000*(3.25*1060)/5280) = 72 mi
a((17.758-17.35)/(94.75-93.233))/rad = 15.05 degrees s of e

marker: Cerro Zempoaltepec, 17.42 -- 95.98, 3396 meters
remove: sqrt((69*(17.758-17.42))^2+(65*(94.75-95.98))^2) = 83 mi
viewed: sqrt(2*4000*(3.25*3396)/5280) = 129 miles
a((17.758-17.42)/(94.75-95.98))/rad = -15.36 degrees s of w

```



[Image: San Lorenzo alignments; plan view. Illustration by J. Cook.]

San Lorenzo site identity:

18.177 degrees n of w -- At 5452 meters, **Popocatepetl** is the 2nd highest mountain in Mexico, but cannot be seen from **San Lorenzo**, since it is 267 miles away. Under the condition of a 30-degree axial inclination of the polar axis, this mountain would signal the day (sunset) that the Sun passes directly overhead at **San Lorenzo (Tenochtitlan)** on August 15 (setting at 18.45 degrees n of w).

After 685 BC, the Sun would pass directly over **San Lorenzo** on August 2, 13 days earlier, setting at 18.54 degrees north of west. The horizon location thus stayed nearly the same.

San Lorenzo era marker:

15.05 degrees s of e -- **El Chichon** is 1060 meters high. This mountain could not be seen. Before 685, with the Earth's axis at 30 degrees, this angle defined a sunrise in winter (sunrise at 15.23 degrees south of east), but in an antipodal direction it is a spring sunset on April 19th, the start of the era after 1492 BC.

15.36 degrees s of w -- At 3396 meters **Cerro Zempoaltepec** is the 11th highest mountain in Mexico. It can be seen from any of the **San Lorenzo** locations. With the Earth's axis at 30 degrees, the angle defined a winter sunset. In the antipodal direction it marked a spring sunrise, which matches the sunrise angle made by **El Chichon**, April 19.

Under the condition of having the axis of the Earth was at 30 degrees, the mountains **El Chichon** and **Cerro Zempoaltepec** would triangulate **San Lorenzo** to a Gregorian equivalent calendar date of April 19th (15.23 degrees).

San Lorenzo additional notes:

The two alignments of 15 degrees could be suggested to represent alignments for a sunrise and sunset for August 12 in the current era. That is just unlikely.

La Venta

center: La Venta, 18.125 -- 93.99				
The axis of the site is aligned 8.0 degrees west of north.				
event	axis 30 degrees date	axis 30 degrees angle	axis 23.5 degrees date	axis 23.5 degrees angle
-----	-----	-----	-----	-----
start 3114 BC era	Aug 13	19.36* ?		15.49
start 2349 BC era	Sep 8	6.63		5.20
start 1492 BC era	Apr 19	15.27**		11.95
start 747 BC era	Feb 28	-11.00(*)		-8.61*
solstice	Jun 21	31.74		24.81
Jup flare-up	Jul 9	30.21		23.62*
Jup plasmoid	Jul 14	29.26		22.88
Jup strike	Jul 25	26.41		20.66
zenithal passage	Aug 14	18.93*	Jul 31	19.13*(*)
Pleiades setting (actual)	--		Oct 8	12.79* 685 BC
			Oct 8	13.27* 685 BC
* -- alignment found; (*) -- antipodal				

La Venta, 18.125 -- 93.99	
... valley mountains	
marker: Nauhcampatepetl, 19.483 -- 97.133, 4282 meters	
remove: sqrt((69*(18.125-19.483))^2+(65*(93.99-97.133))^2) = 224 mi	
viewed: sqrt(2*4000*(3.25*4282)/5280) = 145 mi	
a((18.125-19.483)/(93.99-97.133))/rad = 23.36 degrees s of w	
marker: Popocatepetl, 19.033 -- 98.633, 5452 meters	
remove: sqrt((69*(18.125-19.033))^2+(65*(93.99-98.633))^2) = 308 mi	

viewed: $\sqrt{2*4000*(3.25*5452)/5280} = 163 \text{ mi}$
 $a((18.125-19.033)/(93.99-98.633))/\text{rad} = 11.06 \text{ degrees s of w}$

marker: Citlaltepetl (Pico de Orizaba), 19.0164 -- 97.2667, 5636 meters
remove: $\sqrt{(69*(18.125-19.0164))^2+(65*(93.99-97.2667))^2} = 221 \text{ mi}$
viewed: $\sqrt{2*4000*(3.25*5636)/5280} = 166 \text{ mi}$
 $a((18.125-19.0164)/(93.99-97.2667))/\text{rad} = 15.22 \text{ degrees n of w}$

marker: Ixtaccihuatl, 19.183 -- 98.65, 5230 meters
remove: $\sqrt{(69*(18.125-19.183))^2+(65*(93.99-98.65))^2} = 311 \text{ mi}$
viewed: $\sqrt{2*4000*(3.25*5230)/5280} = 160 \text{ miles}$
 $a((18.125-19.183)/(93.99-98.65))/\text{rad} = 12.79 \text{ degrees}$

marker: Volcan La Malinche, 19.233 -- 98.033, 4462 meters
remove: $\sqrt{(69*(18.125-19.233))^2+(65*(93.99-98.033))^2} = 273 \text{ mi}$
viewed: $\sqrt{2*4000*(3.25*4462)/5280} = 148 \text{ mi}$
 $a((18.125-19.233)/(93.99-98.033))/\text{rad} = 15.32 \text{ degrees n of w}$

... coast mountains

marker: Volcan San Martin Pajapan, 18.316 -- 94.8, 1219 meters
remove: $\sqrt{(69*(18.125-18.316))^2+(65*(93.99-94.8))^2} = 54 \text{ mi}$
viewed: $\sqrt{2*4000*(3.25*1219)/5280} = 77 \text{ mi}$
 $a((18.125-18.316)/(93.99-94.8))/\text{rad} = 13.27 \text{ degrees n of w}$

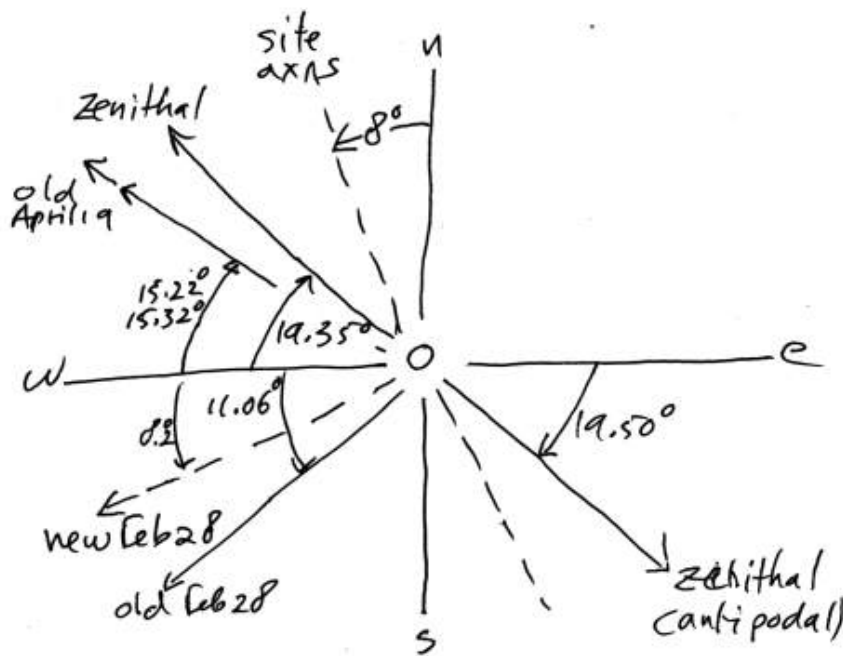
marker: Volcan San Martin Tuxtla, 18.55 -- 95.2, 1650 meters
remove: $\sqrt{(69*(18.125-18.55))^2+(65*(93.99-95.2))^2} = 84 \text{ mi}$
viewed: $\sqrt{2*4000*(3.25*1650)/5280} = 90 \text{ mi}$
 $a((18.125-18.55)/(93.99-95.2))/\text{rad} = 19.35 \text{ degrees n of w}$

marker: Cerro Santa Martha (Veracruz), 18.35 -- 94.855, 1680 meter
remove: $\sqrt{(69*(18.125-18.35))^2+(65*(93.99-94.855))^2} = 58 \text{ mi}$
viewed: $\sqrt{2*4000*(3.25*1680)/5280} = 91 \text{ mi}$
 $a((18.125-18.35)/(93.99-94.855))/\text{rad} = 14.58 \text{ degrees n of w}$

marker: Cerro San Martin (Queretaro), 20.745 -- 99.970
remove: $\sqrt{(69*(18.125-20.745))^2+(65*(93.99-99.970))^2} = 428 \text{ mi}$
viewed: ?? -
 $a((18.125-20.745)/(93.99-99.970))/\text{rad} = 23.65 \text{ degrees n of w}$

marker: El Chichon (Chiapas), 17.35 -- 93.233, 1060 meters
remove: $\sqrt{(69*(18.125-17.35))^2+(65*(93.99-93.233))^2} = 72 \text{ mi}$
viewed: $\sqrt{2*4000*(3.25*1060)/5280} = 72 \text{ mi}$
 $a((18.125-17.35)/(93.99-93.233))/\text{rad} = 45.67 \text{ degrees (out of limit)}$

marker: Cerro Zempoaltepec, 17.419 -- 95.983, 3396 meter
remove: $\sqrt{(69*(18.125-17.419))^2+(65*(93.99-95.983))^2} = 138 \text{ mi}$
viewed: $\sqrt{2*4000*(3.25*3396)/5280} = 129 \text{ miles}$
 $a((18.125-17.419)/(93.99-95.983))/\text{rad} = 19.50 \text{ degrees s of w}$



[Image: La Venta alignments; plan view. Illustration by J. Cook.]

La Venta site identity:

19.35 degrees north of west -- The alignment with **Volcan San Martin Tuxtla** defines the sunset after the overhead passage of the Sun at **La Venta** on August 14 (18.93 degrees), when the axial inclination was 30 degrees, and on July 31 (19.13 degrees), in the current era with a 23.5-degree axial inclination.

19.50 degrees s of w -- This angle to **Cerro Zempoaltepec** defines the same day as above, but as an antipodal sunrise.

La Venta era marker:

Both of the site identity angles shown above (19.36 and 19.50 degrees n of w) also locate a sunset on August 13 before 685 BC. Thus at this site an era-ending marker is combined with a zenithal passage of the Sun. The site of **Izapa** will accomplish the same, but for the date of August 11, and conformed to the current axial inclination of the Earth.

15.22 degrees n of w -- This angle to **Citlaltepētł** defines a sunset on April 19 (15.27 degrees), for a 30-degree axial inclination. **Citlaltepētł** is the highest

peak in Mexico. (See notes, below.)

15.32 degrees n of w -- This angle to **Volcan La Malinche** defines the same sunset on April 19 as above, for a 30-degree axial inclination. **Volcan La Malinche** in direct line with **Citlaltepetl**. (See notes, below.)

11.06 degrees s of w -- The angle to **Popocatepetl** defines a sunrise for the day of February 28 (11.00 degrees), as the start of the era after 747 BC, but selected while the axial inclination was still at 30 degrees, that is, before 685 BC.

Site axis at 8 degrees w of n -- The central axis of the present monuments at **La Venta** determine an orientation for the date of February 28th (8.61 degrees), based on the current axial inclination of 23.5 degrees. Actually, the following day, March 1 might be a better fit (8.21 degrees).

23.65 degrees north of west -- The angle with **Cerro San Martin (Queretaro)** defines a summer sunset on July 9th (23.62 degrees) in the current era. This may be a coincidence.

Setting of the Pleiades -- There are two coaxial alignments for the setting of the Pleiades in 685 to 600 BC to the mountains **Ixtaccihuatl** (12.79 degrees) and **Volcan San Martin Pajapan** (13.27 degrees).

La Venta notes:

The site location was likely established after 747 BC, as shown by the fact that there is an alignment for February 28. This was selected while the axial inclination was still at 30 degrees. This suggests that the 15.22-degree alignment (a sunset n of w) with **Citlaltepetl** (and **Volcan La Malinche**), defines an antipodal sunrise (s of e) for the date of April 19 (of 1492 BC).

Thus the 1492 BC "era-ending" date of **San Lorenzo** was duplicated at **La Venta**, and the era-ending date for 3114 BC and 747 BC were added. These are site location alignments which could not be altered when the Earth's axis changed in 685 BC. A new alignment for the just previous era ending was established by selecting a reconstruction site axis as 8 degrees west of north.

Coincidentally, the two prior alignments at approximately 15.27 degrees, which had pointed to the 1492 BC era-ending dates of April 19th, now could be

assigned to point to the 3114 BC era-ending date of August 13th at 15.49 degrees north of west.

Malmstrom, in "Archaeoastronomy in the Americas" (Ray Williamson, ed. 1981), shows the "Stirling compound," located adjacent (east) to the main structures (Compounds A, B, and C) at **La Venta** as aligned 15 degrees east of north. I do not know the date of the Stirling compound, but the alignment could point directly to a northwest sunset (15.49 degrees) for August 12 of the current era. Malmstrom wanted to use this to establish an "August 13" alignment. This is unlikely to be so because the "Stirling Compound" is older than the remainder of the site, and thus built before 747 BC and before the invention of the Long Count. From site plans I have seen, the Stirling compound looks to have one edge aligned at about 20 degrees west of north, and another at 28 degrees east of north.

Tres Zapotes

center: Tres Zapotes, 18.4667 -- 95.4333				
event	axis 30 degrees		axis 23.5 degrees	
	date	angle	date	angle
-----	-----	-----	-----	-----
start 3114 BC era	Aug 12	19.83*		15.52
start 2349 BC era	Sep 8	6.65		5.21
start 1492 BC era	Apr 19	15.30		11.98 ?
start 747 BC era	Feb 28	-11.02(*)		-8.63
solstice	Jun 21	31.81		24.86
Jup flare-up	Jul 9	30.28*		23.67
Jup plasmoid	Jul 14	29.32		22.92
Jup strike	Jul 25	26.47*(*)		20.70
zenithal passage	Aug 13	19.40*	Jul 30	19.44*
Pleiades setting (actual)	--		Oct 8	12.56* 685 BC
			Oct 8	13.39(*) 685 BC
			Oct 16	16.68* 100 BC
			Oct 16	16.43* 100 BC
* -- alignment found; (*) -- antipodal				

Tres Zapotes was founded sometime in the centuries well before 1000 BC **Tres Zapotes** became a regional center in 900 BC to 800 BC, coinciding with the decline of **San Lorenzo Tenochtitlan**. Abandoned by AD 900.

Tres Zapotes, 18.4667 -- 95.4333

... valley mountains

marker: Nauhcampatepetl, 19.483 -- 97.133, 4282 meters

remove: $\sqrt{(69*(18.4667-19.483))^2+(65*(95.433-97.133))^2}$ = 130 mi

viewed: $\sqrt{2*4000*(3.25*4282)/5280}$ = 145 mi

$a((18.4667-19.483)/(95.433-97.133))/\text{rad}$ = 30.87 degrees n of w

marker: Popocatepetl, 19.033 -- 98.633, 5452 meters

remove: $\sqrt{(69*(18.4667-19.033))^2+(65*(95.433-98.633))^2}$ = 211 mi

viewed: $\sqrt{2*4000*(3.25*5452)/5280}$ = 163 mi

$a((18.4667-19.033)/(95.433-98.633))/\text{rad}$ = 10.03 degrees s of w

marker: Citlaltepetl (Pico de Orizaba), 19.0164 -- 97.2667, 5636 meters

remove: $\sqrt{(69*(18.4667-19.0164))^2+(65*(95.433-97.2667))^2}$ = 125 mi

viewed: $\sqrt{2*4000*(3.25*5636)/5280}$ = 166 mi

$a((18.4667-19.0164)/(95.433-97.2667))/\text{rad}$ = 16.68 degrees n of w

marker: Ixtaccihuatl, 19.183 -- 98.65, 5230 meters *

remove: $\sqrt{(69*(18.466-19.183))^2+(65*(95.433-98.65))^2}$ = 214 mi

viewed: $\sqrt{2*4000*(3.25*5230)/5280}$ = 160 miles

$a((18.466-19.183)/(95.433-98.65))/\text{rad}$ = 12.56 degrees

marker: Volcan La Malinche, 19.233 -- 98.033, 4462 meters *

remove: $\sqrt{(69*(18.466-19.233))^2+(65*(95.433-98.033))^2}$ = 177 mi

viewed: $\sqrt{2*4000*(3.25*4462)/5280}$ = 148 mi

$a((18.466-19.233)/(95.433-98.033))/\text{rad}$ = 16.43 degrees n of w

... coast mountains

marker: Volcan San Martin Pajapan, 18.316 -- 94.8, 1219 meters

remove: $\sqrt{(69*(18.4667-18.316))^2+(65*(95.433-94.8))^2}$ = 42 mi

viewed: $\sqrt{2*4000*(3.25*1219)/5280}$ = 77 mi

$a((18.4667-18.316)/(95.433-94.8))/\text{rad}$ = 13.39 degrees s of e

marker: Volcan San Martin Tuxtla, 18.55 -- 95.2, 1650 meters

remove: $\sqrt{(69*(18.4667-18.55))^2+(65*(95.433-95.2))^2}$ = 16 mi

viewed: $\sqrt{2*4000*(3.25*1650)/5280}$ = 90 mi

$a((18.4667-18.55)/(95.433-95.2))/\text{rad}$ = -19.67 degrees n of e

marker: Cerro Santa Martha (Veracruz), 18.35 -- 94.855, 1680 meter

remove: $\sqrt{(69*(18.4667-18.35))^2+(65*(95.433-94.855))^2}$ = 38 mi

viewed: $\sqrt{2*4000*(3.25*1680)/5280}$ = 91 mi

$a((18.4667-18.35)/(95.433-94.855))/\text{rad}$ = 11.41 degrees s of e

marker: Cerro San Martin (Queretaro), 20.745 -- 99.970

remove: $\sqrt{(69*(18.4667-20.745))^2+(65*(95.433-99.970))^2}$ = 334 mi

viewed: ?? -

$a((18.4667-20.745)/(95.433-99.970))/\text{rad}$ = 26.66 degrees n of w

marker: El Chichon (Chiapas), 17.35 -- 93.233, 1060 meters

remove: $\sqrt{(69*(18.4667-17.35))^2+(65*(95.433-93.233))^2}$ = 162 mi

viewed: $\sqrt{2*4000*(3.25*1060)/5280}$ = 72 mi

$a((18.4667-17.35)/(95.433-93.233))/\text{rad}$ = 26.91 degrees s of e

marker: Cerro Zempoaltepec, 17.419 -- 95.983, 3396 meter


```
remove: sqrt((69*(18.4667-17.419))^2+(65*(95.433-95.983))^2) = 80 mi  
viewed: sqrt(2*4000*(3.25*3396)/5280) = 129 miles  
a((18.4667-17.419)/(95.433-95.983))/rad = -62.30 degrees (out of limits)
```

Tres Zapotes site identity:

19.67 degrees n of e -- The alignment with **Volcan San Martin Tuxtla** represents the day the Sun passes directly overhead on August 13 in the previous era, rising at 19.40 degrees n of e.

Tres Zapotes era markers:

The above 19.67-degree angle is also an alignment for August 12th, 3114 BC (19.83 degrees), for the era before 685 BC.

11.41 degrees s of e -- This angle with **Cerro Santa Martha** (Veracruz), is an antipodal alignment for a sunrise on April 19th, 1492 BC (11.98 degrees), conformed to the current axial inclination of 23.5 degrees. But this is unlikely since all the other alignments are conformed to the era before 685 BC. Thus this more likely represents the era-ending for 747 BC (11.02 degrees s of w), conformed to the previous axial inclination. The antipodal alignment here reflects across the north south axis.

30.87 degrees n of w -- This angle with **Nauhcampatepetl** for a summer sunset defines July 9th (30.28 degrees), but in the era of an axial inclination of 30 degrees, before 685 BC.

26.66 degrees n of w -- The alignment with **Cerro San Martin** (Queretaro) defines a sunset for the date of July 25th (26.47 degrees), but for the era where the axis is still 30 degrees.

26.91 degrees s of e -- The angle with **El Chichon** also defines a sunset for the day of July 25, but in antipodal fashion, and also for the era where the axis is still 30 degrees.

Pleiades setting: -- There are two alignments for the setting of the Pleiades in the era of 685 BC or earlier, to **Ixtacihuatl** (12.56 degrees) and **Volcan San Martin Pajapan** (13.39 degrees).

Pleiades setting: -- There are two additional alignments for the setting of the Pleiades in about 100 BC, at 16.68 degrees n of w to **Citlaltepetl** and 16.43 degrees to **Volcan La Malinche** also n of w.

Tres Zapotes notes:

It is really strange to see the current era-ending alignments of July 9 and July 25 cast in terms of the previous axial alignment, and to find the much older alignment with April 19th -- of 1492 BC -- presented in terms of the current axial inclination. It is more likely, however, that this last is an era-ending for 747 BC, conformed, like the other alignments, to a 30-degree axial inclination.

Tres Zapotes is an old site, and it has been suggested that it became important when **San Lorenzo** was abandoned. This is likely, but because of the August 13th zenithal, and the existence of an August 12 alignment for 3114 BC, I think the site was not developed and located until after 747 BC. Before that time it would have been impossible to retrocalculate the era-ending date for 3114 BC.

Laguna De Los Cerros

center: Laguna De Los Cerros, 18.1167 -- 95.1				
event	axis 30 degrees		axis 23.5 degrees	
	date	angle	date	angle
-----	-----	-----	-----	-----
start 3114 BC era	Aug 12	19.79		15.49
start 2349 BC era	Sep 8	6.63		5.20
start 1492 BC era	Apr 19	15.26		11.95
start 747 BC era	Feb 28	-11.00		-8.61
solstice	Jun 21	31.74		24.80
Jup flare-up	Jul 9	30.21		26.62
Jup plasmoid	Jul 14	29.26		22.87* (*)
Jup strike	Jul 25	26.41		20.66
zenithal passage	Aug 14	18.93	Jul 31	19.13
Pleiades setting (actual) --			Oct 16	16.71* 100 BC
* -- alignment found; (*) -- antipodal				



Laguna De Los Cerros, 18.1167 -- 95.1

... valley mountains

marker: Nauhcampatepetl, 19.483 -- 97.133, 4282 meters
remove: $\sqrt{(69*(18.1167-19.483))^2+(65*(95.1-97.133))^2}$ = 162 mi
viewed: $\sqrt{2*4000*(3.25*4282)/5280}$ = 145 mi
 $a((18.1167-19.483)/(95.1-97.133))/\text{rad}$ = 33.9 degrees (out of limits)

marker: Popocatepetl, 19.033 -- 98.633, 5452 meters
remove: $\sqrt{(69*(18.1167-19.033))^2+(65*(95.1-98.633))^2}$ = 238 mi
viewed: $\sqrt{2*4000*(3.25*5452)/5280}$ = 163 mi
 $a((18.1167-19.033)/(95.1-98.633))/\text{rad}$ = 14.54 degrees

marker: Citlaltepetl (Pico de Orizaba), 19.0164 -- 97.2667, 5636 meters
remove: $\sqrt{(69*(18.1167-19.0164))^2+(65*(95.1-97.2667))^2}$ = 154 mi
viewed: $\sqrt{2*4000*(3.25*5636)/5280}$ = 166 mi
 $a((18.1167-19.0164)/(95.1-97.2667))/\text{rad}$ = 22.55 degrees n of w

marker: Ixtaccihuatl, 19.183 -- 98.65, 5230 meters
remove: $\sqrt{(69*(18.1167-19.183))^2+(65*(95.1-98.65))^2}$ = 242 mi
viewed: $\sqrt{2*4000*(3.25*5230)/5280}$ = 160 miles
 $a((18.1167-19.183)/(95.1-98.65))/\text{rad}$ = 16.71 degrees

marker: Volcan La Malinche, 19.233 -- 98.033, 4462 meters
remove: $\sqrt{(69*(18.1167-19.233))^2+(65*(95.1-98.033))^2}$ = 205 mi
viewed: $\sqrt{2*4000*(3.25*4462)/5280}$ = 148 mi
 $a((18.1167-19.233)/(95.1-98.033))/\text{rad}$ = 20.83 degrees

... coast mountains

marker: Volcan San Martin Pajapan, 18.316 -- 94.8, 1219 meters
remove: $\sqrt{(69*(18.1167-18.316))^2+(65*(95.1-94.8))^2}$ = 24 mi
viewed: $\sqrt{2*4000*(3.25*1219)/5280}$ = 77 mi
 $a((18.1167-18.316)/(95.1-94.8))/\text{rad}$ = -33.59 degrees (out of limits)

marker: Volcan San Martin Tuxtla, 18.55 -- 95.2, 1650 meters
remove: $\sqrt{(69*(18.1167-18.55))^2+(65*(95.1-95.2))^2}$ = 30 mi
viewed: $\sqrt{2*4000*(3.25*1650)/5280}$ = 90 mi
 $a((18.1167-18.55)/(95.1-95.2))/\text{rad}$ = 77.00 degrees (out of limits)

marker: Cerro Santa Martha (Veracruz), 18.35 -- 94.855, 1680 meter
remove: $\sqrt{(69*(18.1167-18.35))^2+(65*(95.1-94.855))^2}$ = 23 mi
viewed: $\sqrt{2*4000*(3.25*1680)/5280}$ = 91 mi
 $a((18.1167-18.35)/(95.1-94.855))/\text{rad}$ = -43.59 degrees (out of limits)

marker: Cerro San Martin (Queretaro), 20.745 -- 99.970
remove: $\sqrt{(69*(18.1167-20.745))^2+(65*(95.1-99.970))^2}$ = 364 mi
viewed: ?? -
 $a((18.1167-20.745)/(95.1-99.970))/\text{rad}$ = 28.35 degrees

marker: El Chichon (Chiapas), 17.35 -- 93.233, 1060 meters
remove: $\sqrt{(69*(18.1167-17.35))^2+(65*(95.1-93.233))^2}$ = 132 mi
viewed: $\sqrt{2*4000*(3.25*1060)/5280}$ = 72 mi
 $a((18.1167-17.35)/(95.1-93.233))/\text{rad}$ = 22.32 degrees s of e

marker: Cerro Zempoaltepec, 17.419 -- 95.983, 3396 meter
remove: $\sqrt{(69*(18.1167-17.419))^2+(65*(95.1-95.983))^2}$ = 75 mi
viewed: $\sqrt{2*4000*(3.25*3396)/5280}$ = 129 miles

```
a((18.1167-17.419)/(95.1-95.983))/rad = -38.3 degrees (out of limits)
```

22.55 degrees n of w -- The angle made with **Citlaltepētl** in the northwest defines a summer sunset on July 14th (22.87 degrees).

22.32 degrees s of e -- The angle with **El Chichon** in the southeast defines an antipodal summer sunset on July 14th (22.87 degrees).

The alignment of 16.71 degrees may define the setting of the Pleiades after culmination in about 100 BC.

Cerro De La Mesas

center: Cerro De La Mesas, 18.7167 -- 96.15				
event	axis 30 degrees		axis 23.5 degrees	
	date	angle	date	angle
-----	-----	-----	-----	-----
start 3114 BC era	Aug 12	19.86*		15.55
start 2349 BC era	Sep 8	6.66		5.21
start 1492 BC era	Apr 19	15.32* (*)		11.99
start 747 BC era	Feb 28	-11.04 (*)		-8.65
solstice	Jun 21	31.86		24.90 (*) ?
Jup flare-up	Jul 9	30.33		23.70
Jup plasmoid	Jul 14	29.37		22.96
Jup strike	Jul 25	26.51		20.73
zenithal passage	Aug 12	19.86*	Jul 29	19.74*
* -- alignment found; (*) -- antipodal				

Cerro De La Mesas ("hill of the altars"), is an archaeological site in Veracruz, Mexico. It was a prominent regional center from 600 BC to AD 900, and a regional capital from perhaps AD 300 to AD 600.

```
Cerro De La Mesas, 18.7167 -- 96.15

... valley mountains

marker: Nauhcampatepetl, 19.483 -- 97.133, 4282 meters
remove: sqrt((69*(18.7167-19.483))^2+(65*(96.15-97.133))^2) = 83 mi
viewed: sqrt(2*4000*(3.25*4282)/5280) = 145 mi
```

```

a((18.7167-19.483)/(96.15-97.133))/rad = 37.9 degrees (out of limits)

marker: Popocatepetl, 19.033 -- 98.633, 5452 meters
remove: sqrt((69*(18.7167-19.033))^2+(65*(96.15-98.633))^2) = 163 mi
viewed: sqrt(2*4000*(3.25*5452)/5280) = 163 mi
a((18.7167-19.033)/(96.15-98.633))/rad = 7.25 degrees

marker: Citlaltepetl (Pico de Orizaba), 19.0164 -- 97.2667, 5636 meters
remove: sqrt((69*(18.7167-19.0164))^2+(65*(96.15-97.2667))^2) = 75 mi
viewed: sqrt(2*4000*(3.25*5636)/5280) = 166 mi
a((18.7167-19.0164)/(96.15-97.2667))/rad = 15.02 degrees n of w

marker: Ixtaccihuatl, 19.183 -- 98.65, 5230 meters
remove: sqrt((69*(18.716-19.183))^2+(65*(96.15-98.65))^2) = 165 mi
viewed: sqrt(2*4000*(3.25*5230)/5280) = 160 miles
a((18.716-19.183)/(96.15-98.65))/rad = 10.58 degrees n of w

marker: Volcan La Malinche, 19.233 -- 98.033, 4462 meters
remove: sqrt((69*(18.716-19.233))^2+(65*(96.15-98.033))^2) = 127 mi
viewed: sqrt(2*4000*(3.25*4462)/5280) = 148 mi
a((18.716-19.233)/(96.15-98.033))/rad = 15.35 degrees n of w

... coast mountains

marker: Volcan San Martin Pajapan, 18.316 -- 94.8, 1219 meters
remove: sqrt((69*(18.7167-18.316))^2+(65*(96.15-94.8))^2) = 92 mi
viewed: sqrt(2*4000*(3.25*1219)/5280) = 77 mi
a((18.7167-18.316)/(96.15-94.8))/rad = 16.53 degrees

marker: Volcan San Martin Tuxtla, 18.55 -- 95.2, 1650 meters
remove: sqrt((69*(18.7167-18.55))^2+(65*(96.15-95.2))^2) = 62 mi
viewed: sqrt(2*4000*(3.25*1650)/5280) = 90 mi
a((18.7167-18.55)/(96.15-95.2))/rad = 9.95 degrees

marker: Cerro Santa Martha (Veracruz), 18.35 -- 94.855, 1680 meter
remove: sqrt((69*(18.7167-18.35))^2+(65*(96.15-94.855))^2) = 88 mi
viewed: sqrt(2*4000*(3.25*1680)/5280) = 91 mi
a((18.7167-18.35)/(96.15-94.855))/rad = 15.81 degrees s of e

marker: Cerro San Martin (Queretaro), 20.745 -- 99.970
remove: sqrt((69*(18.7167-20.745))^2+(65*(96.15-99.970))^2) = 285 mi
viewed: ?? -
a((18.7167-20.745)/(96.15-99.970))/rad = 27.96 degrees

marker: El Chichon (Chiapas), 17.35 -- 93.233, 1060 meters
remove: sqrt((69*(18.7167-17.35))^2+(65*(96.15-93.233))^2) = 211 mi
viewed: sqrt(2*4000*(3.25*1060)/5280) = 72 mi
a((18.7167-17.35)/(96.15-93.233))/rad = 25.10 degrees s of e

marker: Cerro Zempoaltepec, 17.419 -- 95.983, 3396 meter
remove: sqrt((69*(18.7167-17.419))^2+(65*(96.15-95.983))^2) = 90 mi
viewed: sqrt(2*4000*(3.25*3396)/5280) = 129 miles
a((18.7167-17.419)/(96.15-95.983))/rad = 82.6 degrees (out of limits)

```

Cerro De La Mesas site identity:

Interestingly, the Sun passes overhead on August 12th, but there is no mountain at 19.73 degrees for an alignment. This is also the era-ending marker for 3114 BC.

25.10 degrees s of e -- The alignment with **El Chichon (Chiapas)** is a winter solstitial alignment (24.90 degrees) or an antipodal alignment for a summer solstice sunset, for the current era. I think this is in error, that is, it is a coincidence, for all the other alignments are for the previous era.

Cerro De La Mesas era marker:

The zenithal passage of the Sun on August 12 also signals the era-ending of 3114 BC.

15.35 degrees n of w -- The alignment with **Volcan La Malinche** defines a sunset on April 19 (15.32 degrees) in the era with the axis at 30 degrees.

15.81 degrees s of e -- The angle with **Cerro Santa Martha** (Veracruz) marks an antipodal sunset on April 19 (15.55 degrees), in the era with the axis at 30 degrees.

10.58 degrees n of w -- This is a summer sunset over **Ixtaccihuatl** but defines an antipodal winter sunrise for February 28th (11.04 degrees), for an axial inclination of 30 degrees.

Cerro De La Mesas discussion:

At this site, dated to after 600 BC, we see the first solstitial alignment, although it might be coincidental.

Remojadas

center: Remojadas, 18.9833 -- 96.3167				
event	axis 30 degrees		axis 23.5 degrees	
	date	angle	date	angle
-----	-----	-----	-----	-----
start 3114 BC era	Aug 12	19.90		15.57
start 2349 BC era	Sep 8	6.67		5.22*
start 1492 BC era	Apr 19	15.34		12.01

start 747 BC era	Feb 28	-11.06		-8.66(*)
solstice	Jun 21	31.92*		24.94
Jup flare-up	Jul 9	30.38		23.74(*)
Jup plasmoid	Jul 14	29.42		23.00(*)
Jup strike	Jul 25	26.56		20.77(*)
zenithal passage	Aug 11	20.32	Jul 28	20.03
* -- alignment found				

```

Remojadas, 18.9833 -- 96.3167

... valley mountains

marker: Nauhcampatepetl, 19.483 -- 97.133, 4282 meters
remove: sqrt((69*(18.9833-19.483))^2+(65*(96.3167-97.133))^2) = 63 mi
viewed: sqrt(2*4000*(3.25*4282)/5280) = 145 mi
a((18.9833-19.483)/(96.3167-97.133))/rad = 31.47 degrees n of w

marker: Popocatepetl, 19.033 -- 98.633, 5452 meters
remove: sqrt((69*(18.9833-19.033))^2+(65*(96.3167-98.633))^2) = 150 mi
viewed: sqrt(2*4000*(3.25*5452)/5280) = 163 mi
a((18.9833-19.033)/(96.3167-98.633))/rad = 1.23 degrees n of w

marker: Citlaltepetl (Pico de Orizaba), 19.0164 -- 97.2667, 5636 meters
remove: sqrt((69*(18.9833-19.0164))^2+(65*(96.3167-97.2667))^2) = 61 mi
viewed: sqrt(2*4000*(3.25*5636)/5280) = 166 mi
a((18.9833-19.0164)/(96.3167-97.2667))/rad = 1.99 degrees n of w

marker: Ixtaccihuatl, 19.183 -- 98.65, 5230 meters *
remove: sqrt((69*(18.9833-19.183))^2+(65*(96.3167-98.65))^2) = 152 mi
viewed: sqrt(2*4000*(3.25*5230)/5280) = 160 miles
a((18.9833-19.183)/(96.3167-98.65))/rad = 4.89 degrees n of w

marker: Volcan La Malinche, 19.233 -- 98.033, 4462 meters *
remove: sqrt((69*(18.9833-19.233))^2+(65*(96.3167-98.033))^2) = 112 mi
viewed: sqrt(2*4000*(3.25*4462)/5280) = 148 mi
a((18.9833-19.233)/(96.3167-98.033))/rad = 8.27 degrees n of w

... coast mountains

marker: Volcan San Martin Pajapan, 18.316 -- 94.8, 1219 meters
remove: sqrt((69*(18.9833-18.316))^2+(65*(96.3167-94.8))^2) = 108 mi
viewed: sqrt(2*4000*(3.25*1219)/5280) = 77 mi
a((18.9833-18.316)/(96.3167-94.8))/rad = 23.74 degrees s of e

marker: Volcan San Martin Tuxtla, 18.55 -- 95.2, 1650 meters
remove: sqrt((69*(18.9833-18.55))^2+(65*(96.3167-95.2))^2) = 78 mi
viewed: sqrt(2*4000*(3.25*1650)/5280) = 90 mi
a((18.9833-18.55)/(96.3167-95.2))/rad = 21.20 degrees s of e

marker: Cerro Santa Martha (Veracruz), 18.35 -- 94.855, 1680 meter
remove: sqrt((69*(18.9833-18.35))^2+(65*(96.3167-94.855))^2) = 104 mi
viewed: sqrt(2*4000*(3.25*1680)/5280) = 91 mi

```

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a((18.9833-18.35)/(96.3167-94.855))/rad = 23.42 degrees s of e

marker: Cerro San Martin (Queretaro), 20.745 -- 99.970
remove: sqrt((69*(18.9833-20.745))^2+(65*(96.3167-99.970))^2) = 266 mi
viewed: ?? -
a((18.9833-20.745)/(96.3167-99.970))/rad = 25.74 degrees n of w

marker: El Chichon (Chiapas), 17.35 -- 93.233, 1060 meters
remove: sqrt((69*(18.9833-17.35))^2+(65*(96.3167-93.233))^2) = 229 mi
viewed: sqrt(2*4000*(3.25*1060)/5280) = 72 mi
a((18.9833-17.35)/(96.3167-93.233))/rad = 27.908 degrees

marker: Cerro Zempoaltepec, 17.419 -- 95.983, 3396 meter
remove: sqrt((69*(18.9833-17.419))^2+(65*(96.3167-95.983))^2) = 110 mi
viewed: sqrt(2*4000*(3.25*3396)/5280) = 129 miles
a((18.9833-17.419)/(96.3167-95.983))/rad = 77.95 degrees (out of limits)

```

Remojadas site identity:

31.47 degrees n of w -- This angle with **Nauhcampatepetl** defines a summer solstice in the previous era, with an axial inclination of 30 degrees (31.92 degrees).

Remojadas era markers:

4.89 degrees n of w -- The angle with **Ixtaccihuatl** marks the ending of the era on September 8, 2349 BC before 685 BC (5.22 degrees), conformed to the current axial inclination, as are all the other alignments at this site (except the possible solstice, above).

8.27 degrees n of w -- The angle with **Volcan La Malinche** marks an antipodal sunrise of date of February 28th (8.66 degrees), conformed to the current era.

23.74 degrees s of e -- The angle with **Volcan San Martin Pajapan** defines an antipodal summer sunset on July 9th (23.74 degrees), conformed to the current era.

23.42 degrees s of e -- The angle with **Cerro Santa Martha** (Veracruz) marks the antipodal day of the release of the plasmoid, July 14, 586 BC (23.00 degrees), conformed to the current era.

21.20 degrees s of e -- The angle with **Volcan San Martin Tuxtla** marks the antipodal day of the delivery of the plasmoid, July 25, 586 BC (20.77 degrees), conformed to the current era.

Remojadas notes:

The complete array of era markers which are presented, September 8, 2349 BC, February 28, 747 BC, April 2, 685 BC, and July 9th, 14th, and 25th, is amazing. All of these are presented under the current condition of a 23.5-degree axial inclination.

The solstice alignment is conformed to the previous 30-degree axial inclination, and is probably in error.

Zempoala

center: Zempoala, 19.447 -- 96.408				
event	axis 30 degrees date	angle	axis 23.5 degrees date	angle
-----	-----	-----	-----	-----
start 3114 BC era	Aug 12	19.96		15.62
start 2349 BC era	Sep 8	6.69(*)		5.24
start 1492 BC era	Apr 19	15.39		12.05
start 747 BC era	Feb 28	-11.09*		-8.68
solstice	Jun 21	32.02		25.01
Jup flare-up	Jul 9	30.48		23.81
Jup plasmoid	Jul 14	29.51		23.07
Jup strike	Jul 25	26.64*		20.83
zenithal passage	Aug 10	20.80*	Jul 26	20.59*
* -- alignment found				

Zempoala, 19.447 -- 96.408	
... valley mountains	
marker: Nauhcampatepetl, 19.483 -- 97.133, 4282 meters	
remove: $\sqrt{(69*(19.447-19.483))^2+(65*(96.408-97.133))^2}$ = 47 mi	
viewed: $\sqrt{2*4000*(3.25*4282)/5280}$ = 145 mi	
$a((19.447-19.483)/(96.408-97.133))/\text{rad}$ = 2.84 degrees	
marker: Popocatepetl, 19.033 -- 98.633, 5452 meters	
remove: $\sqrt{(69*(19.447-19.033))^2+(65*(96.408-98.633))^2}$ = 147 mi	
viewed: $\sqrt{2*4000*(3.25*5452)/5280}$ = 163 mi	
$a((19.447-19.033)/(96.408-98.633))/\text{rad}$ = -10.54 degrees s of w	

```

marker: Citlaltepetl (Pico de Orizaba), 19.0164 -- 97.2667, 5636 meters
remove: sqrt((69*(19.447-19.0164))^2+(65*(96.408-97.2667))^2) = 63 mi
viewed: sqrt(2*4000*(3.25*5636)/5280) = 166 mi
a((19.447-19.0164)/(96.408-97.2667))/rad = -26.6 degrees s of w

marker: Ixtaccihuatl, 19.183 -- 98.65, 5230 meters
remove: sqrt((69*(19.447-19.183))^2+(65*(96.408-98.65))^2) = 146 mi
viewed: sqrt(2*4000*(3.25*5230)/5280) = 160 miles
a((19.447-19.183)/(96.408-98.65))/rad = -6.71 degrees s of w

marker: Volcan La Malinche, 19.233 -- 98.033, 4462 meters
remove: sqrt((69*(19.447-19.233))^2+(65*(96.408-98.033))^2) = 106 mi
viewed: sqrt(2*4000*(3.25*4462)/5280) = 148 mi
a((19.447-19.233)/(96.408-98.033))/rad = -7.50 degrees s of w

... coast mountains

marker: Volcan San Martin Pajapan, 18.316 -- 94.8, 1219 meters
remove: sqrt((69*(19.447-18.316))^2+(65*(96.408-94.8))^2) = 130 mi
viewed: sqrt(2*4000*(3.25*1219)/5280) = 77 mi
a((19.447-18.316)/(96.408-94.8))/rad = 35.12 degrees (out of limits)

marker: Volcan San Martin Tuxtla, 18.55 -- 95.2, 1650 meters
remove: sqrt((69*(19.447-18.55))^2+(65*(96.408-95.2))^2) = 100 mi
viewed: sqrt(2*4000*(3.25*1650)/5280) = 90 mi
a((19.447-18.55)/(96.408-95.2))/rad = 36.59 degrees (out of limits)

marker: Cerro Santa Martha (Veracruz), 18.35 -- 94.855, 1680 meter
remove: sqrt((69*(19.447-18.35))^2+(65*(96.408-94.855))^2) = 126 mi
viewed: sqrt(2*4000*(3.25*1680)/5280) = 91 mi
a((19.447-18.35)/(96.408-94.855))/rad = 35.23 degrees (out of limits)

marker: Cerro San Martin (Queretaro), 20.745 -- 99.970
remove: sqrt((69*(19.447-20.745))^2+(65*(96.408-99.970))^2) = 248 mi
viewed: ?? -
a((19.447-20.745)/(96.408-99.970))/rad = 20.02 degrees n of w

marker: El Chichon (Chiapas), 17.35 -- 93.233, 1060 meters
remove: sqrt((69*(19.447-17.35))^2+(65*(96.408-93.233))^2) = 252 mi
viewed: sqrt(2*4000*(3.25*1060)/5280) = 72 mi
a((19.447-17.35)/(96.408-93.233))/rad = 33.44 degrees (out of limits)

marker: Cerro Zempoaltepec, 17.419 -- 95.983, 3396 meter
remove: sqrt((69*(19.447-17.419))^2+(65*(96.408-95.983))^2) = 142 mi
viewed: sqrt(2*4000*(3.25*3396)/5280) = 129 miles
a((19.447-17.419)/(96.408-95.983))/rad = 78.16 degrees (out of limits)

```

Zempoala site identity:

20.02 degrees n of w -- The angle with **Cerro San Martin (Queretaro)** defines the summer sunset for the zenithal passage of the Sun (at 89.92 elevation) on July 26th (20.59 degrees) conformed to the era after 685 BC. In the prior era the zenithal passage would have fallen on August 10.

Zempoala era markers:

10.54 degrees s of w -- The angle with **Popocatepetl** marks a sunset for the date of February 28th (11.09 degrees), but for the condition of a 30-degree axis.

6.71 degrees s of w -- The angle with **Ixtaccihuatl** marks an antipodal rise of the Pleiades for September 8, 2349 BC (6.69 degrees), for the condition of a 30-degree axis.

26.6 degrees s of w -- The angle with **Citlaltepētāl** defines the day of the plasmoid strike on July 25th (26.64 degrees), but for the condition of a 30-degree axis.

Zempoala notes:

Again, era markers are presented as alignments only valid for the previous axial inclination. The site identification alignment could also be grouped with these. Interestingly, the site identity alignment became important after 685 BC because it fell on July 26 -- New Year's Day as established by **Teotihuacan**.

Teotihuacan

center: Teotihuacan; 19.683 -- 98.85				
The axis of the site is aligned 15.5 degrees east of north.				
event	axis 30 degrees date	angle	axis 23.5 degrees date	angle
-----	-----	-----	-----	-----
start 3114 BC era	Aug 12	19.99		15.64*
start 2349 BC era	Sep 8	6.70		5.24
start 1492 BC era	Apr 19	15.41		12.06
start 747 BC era	Feb 28	-11.11		-8.70
solstice	Jun 21	32.07		25.05
Jup flare-up	Jul 9	30.52		23.85
Jup plasmoid	Jul 14	29.56		23.10(*)
Jup strike	Jul 25	26.68		20.86#
zenithal passage	Aug 10	20.83*	Jul 25	20.86*
Pleiades setting (actual)	--		Oct 22	18.65(*) AD 200
			Oct 22	18.45(*) AD 200
* -- alignment found, (*) -- antipodal, # -- implied				

Teotihuacan; 19.683 -- 98.85

... valley mountains

marker: Nauhcampatepetl, 19.483 -- 97.133, 4282 meters
remove: $\sqrt{(69*(19.683-19.483))^2+(65*(98.85-97.133))^2}$ = 112 mi
viewed: $\sqrt{2*4000*(3.25*4282)/5280}$ = 145 mi
 $a((19.683-19.483)/(98.85-97.133))/\text{rad}$ = 6.64 degrees s of e

marker: Popocatepetl, 19.033 -- 98.633, 5452 meters
remove: $\sqrt{(69*(19.683-19.033))^2+(65*(98.85-98.633))^2}$ = 47 mi
viewed: $\sqrt{2*4000*(3.25*5452)/5280}$ = 164 mi
 $a((19.683-19.033)/(98.85-98.633))/\text{rad}$ = 71.5 degrees (out of limits)

marker: Citlaltepetl (Pico de Orizaba), 19.0164 -- 97.2667, 5636 meters
remove: $\sqrt{(69*(19.683-19.0164))^2+(65*(98.85-97.2667))^2}$ = 113 mi
viewed: $\sqrt{2*4000*(3.25*5636)/5280}$ = 166 mi
 $a((19.683-19.0164)/(98.85-97.2667))/\text{rad}$ = 22.83 degrees s of e

marker: Ixtaccihuatl, 19.183 -- 98.65, 5230 meters
remove: $\sqrt{(69*(19.683-19.183))^2+(65*(98.85-98.65))^2}$ = 36 mi
viewed: $\sqrt{2*4000*(3.25*5230)/5280}$ = 160 miles
 $a((19.683-19.183)/(98.85-98.65))/\text{rad}$ = 68.1 degrees (out of limits)

marker: Volcan La Malinche, 19.233 -- 98.033, 4462 meters
remove: $\sqrt{(69*(19.683-19.233))^2+(65*(98.85-98.033))^2}$ = 61 mi
viewed: $\sqrt{2*4000*(3.25*4462)/5280}$ = 148 mi
 $a((19.683-19.233)/(98.85-98.033))/\text{rad}$ = 28.84 degrees

... coast mountains

marker: Volcan San Martin Pajapan, 18.316 -- 94.8, 1219 meters
remove: $\sqrt{(69*(19.683-18.316))^2+(65*(98.85-94.8))^2}$ = 279 mi
viewed: $\sqrt{2*4000*(3.25*1219)/5280}$ = 77 mi
 $a((19.683-18.316)/(98.85-94.8))/\text{rad}$ = 18.65 degrees s of e

marker: Volcan San Martin Tuxtla, 18.55 -- 95.2, 1650 meters
remove: $\sqrt{(69*(19.683-18.55))^2+(65*(98.85-95.2))^2}$ = 249 mi
viewed: $\sqrt{2*4000*(3.25*1659)/5280}$ = 90 mi
 $a((19.683-18.55)/(98.85-95.2))/\text{rad}$ = 17.24 degrees

marker: Cerro Santa Martha (Veracruz), 18.35 -- 94.855, 1680 meters
remove: $\sqrt{(69*(19.683-18.35))^2+(65*(98.85-94.855))^2}$ = 275 mi
viewed: $\sqrt{2*4000*(3.25*1680)/5280}$ = 91 mi
 $a((19.683-18.35)/(98.85-94.855))/\text{rad}$ = 18.45 degrees s of e

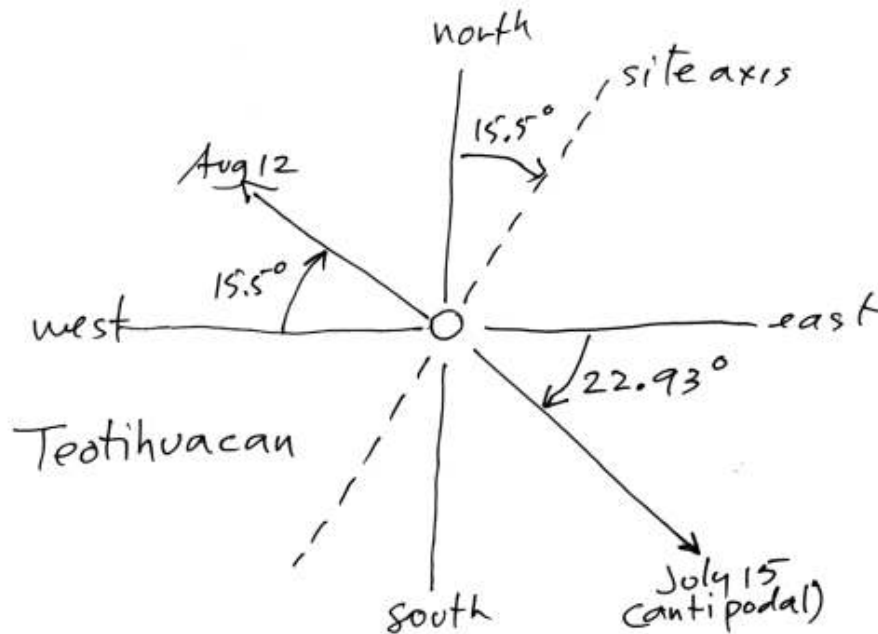
marker: Cerro San Martin (Queretaro), 20.745 -- 99.970
remove: $\sqrt{(69*(19.683-20.745))^2+(65*(98.85-99.970))^2}$ = 103 mi
viewed: ??
 $a((19.683-20.745)/(98.85-99.970))/\text{rad}$ = 43.47 degrees (out of limits)

marker: El Chichon (Chiapas), 17.35 -- 93.233, 1060 meters
remove: $\sqrt{(69*(19.683-17.35))^2+(65*(98.85-93.233))^2}$ = 399 mi
viewed: $\sqrt{2*4000*(3.25*1060)/5280}$ = 72 mi
 $a((19.683-17.35)/(98.85-93.233))/\text{rad}$ = 22.55 degrees s of e

```

marker: Cerro Zempoaltepec, 17.42 -- 95.98, 3396 meters
remove: sqrt((69*(19.683-17.42))^2+(65*(98.85-95.98))^2) = 243 mi
viewed: sqrt(2*4000*(3.25*3396)/5280) = 129 mi
a((19.683-17.42)/(98.85-95.98))/rad = 38.25 degrees (out of limits)

```



[Image: Teotihuacan alignments; plan view. Illustration by J. Cook.]

Teotihuacan site identity:

The Sun passes overhead at 89.86 degrees on July 25th. This also marks the delivery of Jupiter's plasmoid at the Sun in 685 BC.

Teotihuacan era marker:

The axis of the site defines the setting of Sun at 15.60 degrees north of west for August 12, 3114 BC (15.64 degrees n of w) -- at right angle to the long axis of the site.

22.83 degrees s of e -- This angle with **Citlaltepetl**, the highest mountain in Mexico, suggests an antipodal sunset on July 15th (22.93 degrees), the day after July 14th (23.10 degrees).

The zenithal passage of the Sun on July 25 also marks the era-ending of 685 BC.

Pleiades setting: -- There are two antipodal alignments to **Volcan San Martin Pajapan** (18.65 degrees) and **Cerro Santa Martha (Veracruz)** (18.45 degrees). Both of these are correct for the era of AD 200 to 400.

The overhead passage of the Sun is also a marker for the current era.

Tlatilco

center: Tlatilco, 19.466 -- 99.166				
event	axis 30 degrees		axis 23.5 degrees	
	date	angle	date	angle
-----	-----	-----	-----	-----
start 3114 BC era	Aug 12	19.96*		15.62
start 2349 BC era	Sep 8	6.69		5.24
start 1492 BC era	Apr 19	15.39**		12.05
start 747 BC era	Feb 28	-11.09*		-8.68
solstice	Jun 21	32.02		25.02
Jup flare-up	Jul 9	30.48		23.81
Jup plasmoid	Jul 14	29.51		23.07
Jup strike	Jul 25	26.64		20.83
zenithal passage	Aug 10	20.80*	Jul 26	20.59*
Pleiades setting (actual)	--		Oct 8	13.31(*) 685 BC
			Oct 8	13.00(*) 685 BC
* -- alignment found; (*) -- antipodal				

Tlatilco, 19.466 -- 99.166	
... valley mountains	
marker: Nauhcampatepetl, 19.483 -- 97.133, 4282 meters *	
remove: $\sqrt{(69*(19.466-19.483))^2+(65*(99.166-97.133))^2}$ = 132 mi	
viewed: $\sqrt{2*4000*(3.25*4282)/5280}$ = 145 mi	
$a((19.466-19.483)/(99.166-97.133))/\text{rad}$ = -.479 degrees n of e	
marker: Popocatepetl, 19.033 -- 98.633, 5452 meters	
remove: $\sqrt{(69*(19.466-19.033))^2+(65*(99.166-98.633))^2}$ = 45 mi	
viewed: $\sqrt{2*4000*(3.25*5452)/5280}$ = 163 mi	
$a((19.466-19.033)/(99.166-98.633))/\text{rad}$ = 39.09 degrees (out of limits)	
marker: Citlaltepetl (Pico de Orizaba), 19.0164 -- 97.2667, 5636 meters	
remove: $\sqrt{(69*(19.466-19.0164))^2+(65*(99.166-97.2667))^2}$ = 127 mi	
viewed: $\sqrt{2*4000*(3.25*5636)/5280}$ = 166 mi	
$a((19.466-19.0164)/(99.166-97.2667))/\text{rad}$ = 13.31 degrees	

```

marker: Ixtaccihuatl, 19.183 -- 98.65, 5230 meters
remove: sqrt((69*(19.466-19.183))^2+(65*(99.166-98.65))^2) = 38 mi
viewed: sqrt(2*4000*(3.25*5230)/5280) = 160 miles
a((19.466-19.183)/(99.166-98.65))/rad = 28.74 degrees

marker: Volcan La Malinche, 19.233 -- 98.033, 4462 meters
remove: sqrt((69*(19.466-19.233))^2+(65*(99.166-98.033))^2) = 75 mi
viewed: sqrt(2*4000*(3.25*4462)/5280) = 148 mi
a((19.466-19.233)/(99.166-98.033))/rad = 11.62 degrees s of e

... coast mountains

marker: Volcan San Martin Pajapan, 18.316 -- 94.8, 1219 meters
remove: sqrt((69*(19.466-18.316))^2+(65*(99.166-94.8))^2) = 294 mi
viewed: sqrt(2*4000*(3.25*1219)/5280) = 77 mi
a((19.466-18.316)/(99.166-94.8))/rad = 14.75 degrees s of w

marker: Volcan San Martin Tuxtla, 18.55 -- 95.2, 1650 meters
remove: sqrt((69*(19.466-18.55))^2+(65*(99.166-95.2))^2) = 264 mi
viewed: sqrt(2*4000*(3.25*1650)/5280) = 90 mi
a((19.466-18.55)/(99.166-95.2))/rad = 13.00 degrees

marker: Cerro Santa Martha (Veracruz), 18.35 -- 94.855, 1680 meter
remove: sqrt((69*(19.466-18.35))^2+(65*(99.166-94.855))^2) = 290 mi
viewed: sqrt(2*4000*(3.25*1680)/5280) = 91 mi
a((19.466-18.35)/(99.166-94.855))/rad = 14.51 degrees s of w

marker: Cerro San Martin (Queretaro), 20.745 -- 99.970
remove: sqrt((69*(19.466-20.745))^2+(65*(99.166-99.970))^2) = 102 mi
viewed: ?? -
a((19.466-20.745)/(99.166-99.970))/rad = 57.84 degrees (out of limits)

marker: El Chichon (Chiapas), 17.35 -- 93.233, 1060 meters
remove: sqrt((69*(19.466-17.35))^2+(65*(99.166-93.233))^2) = 412 mi
viewed: sqrt(2*4000*(3.25*1060)/5280) = 72 mi
a((19.466-17.35)/(99.166-93.233))/rad = 19.62 degrees s of e

marker: Cerro Zempoaltepec, 17.419 -- 95.983, 3396 meter
remove: sqrt((69*(19.466-17.419))^2+(65*(99.166-95.983))^2) = 250 mi
viewed: sqrt(2*4000*(3.25*3396)/5280) = 129 miles
a((19.466-17.419)/(99.166-95.983))/rad = 32.74 degrees (out of limits)

```

Tlatilco site identity:

In the era after 685 BC, the zenithal sun passed over the site on July 26, a significant day, but there is no mountain associated with this.

0.479 degrees n of e -- This is a vernal equinox sunrise over the mountain Nauhcampatepetl, a very unusual alignment.

Tlatilco era markers:

19.62 degrees s of e -- The angle with **El Chichon** (Chiapas) marks a sunset for August 12, under the condition of a 30-degree axis.

14.75 degrees s of w -- The angle with **Volcan San Martin Pajapan** marks a sunset for the date of April 19th, 1492 BC (15.39 degrees), under the condition of a 30-degree axis.

14.51 degrees s of w -- The angle with **Cerro Santa Martha** (Veracruz) also marks a sunset for the date of April 19th (15.39 degrees), under a 30-degree axis, lining up with **Volcan San Martin Pajapan**.

11.62 degrees s of e -- The angle with **Volcan La Malinche** marks a sunrise for the date of February 28, 747 BC (11.09 degrees) for the era before 685 BC.

Pleiades setting: -- There are two antipodal alignments to **Citlaltepetl (Pico de Orizaba)** (13.31 degrees) and **Volcan San Martin Tuxtla** (13.00 degrees). These alignments were in effect directly after 685 BC.

Tlatilco notes:

The era markers, and the curious equinoctial site identity, suggest that this is a fairly old site, but established after 747 BC.

Tizatlan

center: Tizatlan, 19.338 -- 98.219				
event	axis 30 degrees date	angle	axis 23.5 degrees date	angle
-----	-----	-----	-----	-----
start 3114 BC era	Aug 12	19.94 ?		15.61
start 2349 BC era	Sep 8	6.68		5.23
start 1492 BC era	Apr 19	15.38 (*)		12.04
start 747 BC era	Feb 28	-11.08		-8.68
solstice	Jun 21	32.00		25.00
Jup flare-up	Jul 9	30.45		23.80
Jup plasmoid	Jul 14	29.49*		23.05
Jup strike	Jul 25	26.62		20.81
zenithal passage	Aug 11	20.37*	Jul 26	20.57*
Pleiades setting (actual) --			Oct 16	16.64 (*) 100 BC
			Oct 16	16.36 (*) 100 BC

* -- alignment found; (*) -- antipodal

An archaeological site in the valley of Mexico.

Tizatlan, 19.338 -- 98.219

... valley mountains

marker: Nauhcampatepetl, 19.483 -- 97.133, 4282 meters *

remove: $\sqrt{(69*(19.338-19.483))^2+(65*(98.219-97.133))^2} = 71 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*4282)/5280} = 145 \text{ mi}$

$a((19.338-19.483)/(98.219-97.133))/\text{rad} = -7.60 \text{ degrees}$

marker: Popocatepetl, 19.033 -- 98.633, 5452 meters

remove: $\sqrt{(69*(19.338-19.033))^2+(65*(98.219-98.633))^2} = 34 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*5452)/5280} = 163 \text{ mi}$

$a((19.338-19.033)/(98.219-98.633))/\text{rad} = -36.37 \text{ degrees (out of limits)}$

marker: Citlaltepetl (Pico de Orizaba), 19.0164 -- 97.2667, 5636 meters

remove: $\sqrt{(69*(19.338-19.0164))^2+(65*(98.219-97.2667))^2} = 65 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*5636)/5280} = 166 \text{ mi}$

$a((19.338-19.0164)/(98.219-97.2667))/\text{rad} = 18.66 \text{ degrees}$

marker: Ixtaccihuatl, 19.183 -- 98.65, 5230 meters

remove: $\sqrt{(69*(19.338-19.183))^2+(65*(98.219-98.65))^2} = 30 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*5230)/5280} = 160 \text{ miles}$

$a((19.338-19.183)/(98.219-98.65))/\text{rad} = -19.78 \text{ degrees s of w}$

marker: Volcan La Malinche, 19.233 -- 98.033, 4462 meters

remove: $\sqrt{(69*(19.338-19.233))^2+(65*(98.219-98.033))^2} = 14 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*4462)/5280} = 148 \text{ mi}$

$a((19.338-19.233)/(98.219-98.033))/\text{rad} = 29.44 \text{ degrees s of e}$

... coast mountains

marker: Volcan San Martin Pajapan, 18.316 -- 94.8, 1219 meters

remove: $\sqrt{(69*(19.338-18.316))^2+(65*(98.219-94.8))^2} = 233 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*1219)/5280} = 77 \text{ mi}$

$a((19.338-18.316)/(98.219-94.8))/\text{rad} = 16.64 \text{ degrees}$

marker: Volcan San Martin Tuxtla, 18.55 -- 95.2, 1650 meters

remove: $\sqrt{(69*(19.338-18.55))^2+(65*(98.219-95.2))^2} = 203 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*1650)/5280} = 90 \text{ mi}$

$a((19.338-18.55)/(98.219-95.2))/\text{rad} = 14.62 \text{ degrees s of e}$

marker: Cerro Santa Martha (Veracruz), 18.35 -- 94.855, 1680 meter

remove: $\sqrt{(69*(19.338-18.35))^2+(65*(98.219-94.855))^2} = 229 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*1680)/5280} = 91 \text{ mi}$

$a((19.338-18.35)/(98.219-94.855))/\text{rad} = 16.36 \text{ degrees}$

marker: Cerro San Martin (Queretaro), 20.745 -- 99.970

remove: $\sqrt{(69*(19.338-20.745))^2+(65*(98.219-99.970))^2} = 149 \text{ mi}$

```

viewed: ?? -
a((19.338-20.745)/(98.219-99.970))/rad = 38.78 degrees (out of limits)

marker: El Chichon (Chiapas), 17.35 -- 93.233, 1060 meters
remove: sqrt((69*(19.338-17.35))^2+(65*(98.219-93.233))^2) = 352 mi
viewed: sqrt(2*4000*(3.25*1060)/5280) = 72 mi
a((19.338-17.35)/(98.219-93.233))/rad = 21.73 degrees

marker: Cerro Zempoaltepec, 17.419 -- 95.983, 3396 meter
remove: sqrt((69*(19.338-17.419))^2+(65*(98.219-95.983))^2) = 196 mi
viewed: sqrt(2*4000*(3.25*3396)/5280) = 129 miles
a((19.338-17.419)/(98.219-95.983))/rad = 40.63 degrees (out of limits)

```

Tizatlan site identity:

19.78 degrees s of w -- The angle with **Ixtaccihuatl** marks the antipodal zenithal sunrise for July 26 for current era (20.57 degrees) or August 11 of the previous era (20.37 degrees).

Tizatlan era markers:

The zenithal passage is so close to the angle required to denote August 12, 3114 BC (19.94) before 685 BC, that it may as well be used as such. This is yet another case of the setting angle of the zenithal Sun being used also for an era-ending marker. However, see below.

14.62 degrees s of e -- The angle with **Volcan San Martin Tuxtla** marks an antipodal sunset for April 19, 1492 BC (15.38 degrees) under the previous 30-degree axial alignment.

29.44 degrees s of e -- The angle with **Volcan La Malinche** defines the date of July 14 (29.49 degrees), but in the era before 685 BC, with an axial inclination at 30 degrees.

Pleiades setting: -- There is an antipodal alignment with **Citlaltepctl (Pico de Orizaba)** (18.66 degrees) representing a date of AD 200.

Pleiades setting: -- There is an alignment with **Volcan San Martin Pajapan** at 16.64 degrees, and an alignment with **Cerro Santa Martha** at 16.36 degrees. Both point southeast and are thus antipodal. The horizon locations represent the setting of the Pleiades after culmination in about 100 BC.

Cuicuilco

center: Cuicuilco, 19.301 -- 99.181, from 700 BC

event	axis 30 degrees		axis 23.5 degrees	
	date	angle	date	angle
-----	-----	-----	-----	-----
start 3114 BC era	Aug 12	19.94 ?		16.60
start 2349 BC era	Sep 8	6.68		5.23*
start 1492 BC era	Apr 19	15.37		12.03(*) (*)
start 747 BC era	Feb 28	-11.08(*)		-8.67(*)
solstice	Jun 21	31.99		24.99
Jup flare-up	Jul 9	30.44(*)		24.62
Jup plasmoid	Jul 14	29.48		22.04
Jup strike	Jul 25	26.62(*)		20.81
zenithal passage	Aug 11	20.36 ?	Jul 26	20.57
Pleiades setting (actual)	--		Oct 22	18.15(*) AD 200
* -- alignment found; (*) -- antipodal; ? -- suspected				

Cuicuilco, 19.301 -- 99.181

... valley mountains

marker: Nauhcampatepetl, 19.483 -- 97.133, 4282 meters *

remove: $\sqrt{(69*(19.301-19.483))^2 + (65*(99.181-97.133))^2} = 133 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*4282)/5280} = 145 \text{ mi}$

$a((19.301-19.483)/(99.181-97.133))/\text{rad} = -5.07 \text{ degrees n of e}$

marker: Popocatepetl, 19.033 -- 98.633, 5452 meters

remove: $\sqrt{(69*(19.301-19.033))^2 + (65*(99.181-98.633))^2} = 40 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*5452)/5280} = 163 \text{ mi}$

$a((19.301-19.033)/(99.181-98.633))/\text{rad} = 26.06 \text{ degrees s of w}$

marker: Citlaltepetl (Pico de Orizaba), 19.0164 -- 97.2667, 5636 meters

remove: $\sqrt{(69*(19.301-19.0164))^2 + (65*(99.181-97.2667))^2} = 126 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*5636)/5280} = 166 \text{ mi}$

$a((19.301-19.0164)/(99.181-97.2667))/\text{rad} = 8.45 \text{ degrees s of e}$

marker: Volcan La Malinche, 19.233 -- 98.033, 4462 meters

remove: $\sqrt{(69*(19.301-19.233))^2 + (65*(99.181-98.033))^2} = 74 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*4462)/5280} = 148 \text{ mi}$

$a((19.301-19.233)/(99.181-98.033))/\text{rad} = 3.38 \text{ degrees}$

... coast mountains

marker: Volcan San Martin Pajapan, 18.316 -- 94.8, 1219 meters

remove: $\sqrt{(69*(19.301-18.316))^2 + (65*(99.181-94.8))^2} = 292 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*1219)/5280} = 77 \text{ mi}$

```

a((19.301-18.316)/(99.181-94.8))/rad = 12.67 degrees s of e

marker: Volcan San Martin Tuxtla, 18.55 -- 95.2, 1650 meters
remove: sqrt((69*(19.301-18.55))^2+(65*(99.181-95.2))^2) = 263 mi
viewed: sqrt(2*4000*(3.25*1650)/5280) = 90 mi
a((19.301-18.55)/(99.181-95.2))/rad = 10.68 degrees s of e

marker: Cerro Santa Martha (Veracruz), 18.35 -- 94.855, 1680 meter
remove: sqrt((69*(19.301-18.35))^2+(65*(99.181-94.855))^2) = 288 mi
viewed: sqrt(2*4000*(3.25*1680)/5280) = 91 mi
a((19.301-18.35)/(99.181-94.855))/rad = 12.39 degrees s of e

marker: Cerro San Martin (Queretaro), 20.745 -- 99.970
remove: sqrt((69*(19.301-20.745))^2+(65*(99.181-99.970))^2) = 112 mi
viewed: ?? -
a((19.301-20.745)/(99.181-99.970))/rad = 61.34 degrees (out of limits)

marker: El Chichon (Chiapas), 17.35 -- 93.233, 1060 meters
remove: sqrt((69*(19.301-17.35))^2+(65*(99.181-93.233))^2) = 409 mi
viewed: sqrt(2*4000*(3.25*1060)/5280) = 72 mi
a((19.301-17.35)/(99.181-93.233))/rad = 18.15 degrees

marker: Cerro Zempoaltepec, 17.419 -- 95.983, 3396 meter
remove: sqrt((69*(19.301-17.419))^2+(65*(99.181-95.983))^2) = 245 mi
viewed: sqrt(2*4000*(3.25*3396)/5280) = 129 miles
a((19.301-17.419)/(99.181-95.983))/rad = 30.47 degrees s of e

```

Cuicuilco site identity:

There seem to be no site identity alignments. The zenithal Sun passes over on August 11, setting at an angle nearly identical to the angle needed to mark the era-ending of August 12, 3114 BC. There are no mountains associated with these.

Cuicuilco era markers:

... prior era

A possible dual use of the zenithal passage of the Sun is noted above.

10.68 degrees s of e -- The angle with **Volcan San Martin Tuxtla** defines an antipodal sunset for the date of February 28 (11.08 degrees), under the condition of a 30-degree axial inclination.

30.47 degrees s of e -- The angle with **Cerro Zempoaltepec** defines (surprisingly) an antipodal sunset date of the suspected initial flare-up of Jupiter

on July 9 (30.44 degrees), and under the condition of a 30-degree axial inclination.

26.06 degrees s of w -- The angle with **Popocatepetl** likewise defines the antipodal sunrise date of the suspected delivery of the plasmoid by Jupiter on July 26 (26.91 degrees), under the condition of a 30-degree axial inclination.

... current era

12.67 degrees s of e -- The angle with **Volcan San Martin Pajapan** defines an antipodal sunset for the date of April 19, 1492 BC (12.03 degrees), for a 23.5-degree axis.

12.39 degrees s of e -- The angle with **Cerro Santa Martha** (Veracruz) additionally marks the date of April 19th. The mountain is almost the same distance from the site as **Volcan San Martin Pajapan**.

8.45 degrees s of e -- The angle to **Citlaltepetl** defines an antipodal sunset for the date of February 28th (8.67 degrees), under the present conditions of the sky. This duplicates the 10.68-degree alignment.

5.07 degrees n of e -- The angle with **Nauhcampatepetl** marks September 8, 2349 BC (5.23 degrees) for the current era.

Pleiades setting: -- In addition to a sunset for September 8 in the era before 685 BC, there is an antipodal alignment for the setting of the Pleiades to **El Chichon (Chiapas)** (18.15 degrees).

Cuicuilco notes:

Many era markers, but no site identification.

Tlapacoya

center: Tlapacoya, 19.3 -- 98.916				
event	axis 30 degrees		axis 23.5 degrees	
	date	angle	date	angle
-----	-----	-----	-----	-----

start 3114 BC era	Aug 12	19.94?	15.60	
start 2349 BC era	Sep 8	6.68	5.23(*)	
start 1492 BC era	Apr 19	15.37	12.03	
start 747 BC era	Feb 28	-11.08*	-8.67	
solstice	Jun 21	31.99	24.99	
Jup flare-up	Jul 9	30.44	23.79(*)	
Jup plasmoid	Jul 14	29.48	23.04	
Jup strike	Jul 25	26.61	20.81	
zenithal passage	Aug 11	20.36?	Jul 26	20.57
Pleiades setting (actual)	--		Oct 8	13.44(*) 685 BC
			Oct 8	13.16(*) 685 BC
			Oct 22	18.93(*) AD 200

* -- alignment found; (*) -- antipodal

Tlapacoya, 19.3 -- 98.916

... valley mountains

marker: Nauhcampatepetl, 19.483 -- 97.133, 4282 meters

remove: $\sqrt{(69*(19.3-19.483))^2 + (65*(98.916-97.133))^2} = 116 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*4282)/5280} = 145 \text{ mi}$

$a((19.3-19.483)/(98.916-97.133))/\text{rad} = -5.86 \text{ degrees n of e}$

marker: Popocatepetl, 19.033 -- 98.633, 5452 meters

remove: $\sqrt{(69*(19.3-19.033))^2 + (65*(98.916-98.633))^2} = 26 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*5452)/5280} = 163 \text{ mi}$

$a((19.3-19.033)/(98.916-98.633))/\text{rad} = 43.3 \text{ degrees (out of limits)}$

marker: Citlaltepetl (Pico de Orizaba), 19.0164 -- 97.2667, 5636 meters

remove: $\sqrt{(69*(19.3-19.0164))^2 + (65*(98.916-97.2667))^2} = 109 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*5636)/5280} = 166 \text{ mi}$

$a((19.3-19.0164)/(98.916-97.2667))/\text{rad} = 9.75 \text{ degrees}$

marker: Ixtaccihuatl, 19.183 -- 98.65, 5230 meters

remove: $\sqrt{(69*(19.3-19.183))^2 + (65*(98.916-98.65))^2} = 19 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*5230)/5280} = 161 \text{ miles}$

$a((19.3-19.183)/(98.916-98.65))/\text{rad} = 23.74 \text{ degrees s of e}$

marker: Volcan La Malinche, 19.233 -- 98.033, 4462 meters

remove: $\sqrt{(69*(19.3-19.233))^2 + (65*(98.916-98.033))^2} = 57 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*4462)/5280} = 148 \text{ mi}$

$a((19.3-19.233)/(98.916-98.033))/\text{rad} = 4.33 \text{ degrees}$

... coast mountains

marker: Volcan San Martin Pajapan, 18.316 -- 94.8, 1219 meters

remove: $\sqrt{(69*(19.3-18.316))^2 + (65*(98.916-94.8))^2} = 276 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*1219)/5280} = 77 \text{ mi}$

$a((19.3-18.316)/(98.916-94.8))/\text{rad} = 13.44 \text{ degrees}$

marker: Volcan San Martin Tuxtla, 18.55 -- 95.2, 1650 meters

remove: $\sqrt{(69*(19.3-18.55))^2 + (65*(98.916-95.2))^2} = 247 \text{ mi}$

viewed: $\sqrt{2*4000*(3.25*1650)/5280} = 90 \text{ mi}$

```

a((19.3-18.55)/(98.916-95.2))/rad = 11.41 degrees s of e

marker: Cerro Santa Martha (Veracruz), 18.35 -- 94.855, 1680 meter
remove: sqrt((69*(19.3-18.35))^2+(65*(98.916-94.855))^2) = 271 mi
viewed: sqrt(2*4000*(3.25*1680)/5280) = 91 mi
a((19.3-18.35)/(98.916-94.855))/rad = 13.16 degrees

marker: Cerro San Martin (Queretaro), 20.745 -- 99.970
remove: sqrt((69*(19.3-20.745))^2+(65*(98.916-99.970))^2) = 121 mi
viewed: ?? -
a((19.3-20.745)/(98.916-99.970))/rad = 53.89 degrees (out of limits)

marker: El Chichon (Chiapas), 17.35 -- 93.233, 1060 meters
remove: sqrt((69*(19.3-17.35))^2+(65*(98.916-93.233))^2) = 393 mi
viewed: sqrt(2*4000*(3.25*1060)/5280) = 72 mi
a((19.3-17.35)/(98.916-93.233))/rad = 18.93 degrees

marker: Cerro Zempoaltepec, 17.419 -- 95.983, 3396 meter
remove: sqrt((69*(19.3-17.419))^2+(65*(98.916-95.983))^2) = 230 mi
viewed: sqrt(2*4000*(3.25*3396)/5280) = 129 miles
a((19.3-17.419)/(98.916-95.983))/rad = 32.67 degrees (out of limits)

```

Tlapacoya site identification:

There seem to be no site identity alignments, although it could be held that the zenithal sun would mark the era-ending of August 12, 3114 BC. But there are no mountains associated with this.

11.41 degrees s of e -- The angle to **Volcan San Martin Tuxtla** marks the winter sunrise for the date of February 28th (11.08 degrees), but for the condition of having the inclination of the Earth's axis at 30 degrees.

5.86 degrees n of e -- The angle with **Nauhcampatepetl** marks an antipodal sunset for September 8, 2349 BC (5.23 degrees).

23.74 degrees s of e -- The angle to **Ixtaccihuatl** marks an antipodal sunset for the date of July 9th (23.79 degrees).

Setting of the Pleiades -- In addition to the sunset alignment for September 8, 2349 BC, there are two alignments for the setting of the Pleiades in 685 to 600 BC to **Volcan San Martin Pajapan** (13.44 degrees) and **Cerro Santa Martha (Veracruz)** (13.16 degrees) and one for the era of AD 200 to 400 to **El Chichon (Chiapas)** (18.93 degrees).

Cholula

center: Cholula, 19.066 -- 98.3

event	axis 30 degrees		axis 23.5 degrees	
	date	angle	date	angle
-----	-----	-----	-----	-----
start 3114 BC era	Aug 12	19.91		14.94
start 2349 BC era	Sep 8	6.67		5.22*
start 1492 BC era	Apr 19	15.35		12.02(*) (*)
start 747 BC era	Feb 28	-11.06		-8.66
solstice	Jun 21	31.94*		24.95
Jup flare-up	Jul 9	30.40		23.75
Jup plasmoid	Jul 14	29.44		23.01
Jup strike	Jul 25	26.57		20.78
zenithal passage	Aug 11	20.33*	Jul 27	20.29*
Pleiades setting (actual) --			Oct 22	18.48(*) AD 200
			Oct 22	18.71* AD 200

* -- alignment found; (*) antipodal

Cholula, 19.066 -- 98.3

... valley mountains

marker: Nauhcampatepetl, 19.483 -- 97.133, 4282 meters

remove: $\sqrt{(69*(19.066-19.483))^2+(65*(98.3-97.133))^2}$ = 81 mi

viewed: $\sqrt{2*4000*(3.25*4282)/5280}$ = 145 mi

$a((19.066-19.483)/(98.3-97.133))/\text{rad}$ = -19.66 degrees n of e

marker: Popocatepetl, 19.033 -- 98.633, 5452 meters

remove: $\sqrt{(69*(19.066-19.033))^2+(65*(98.3-98.633))^2}$ = 21 mi

viewed: $\sqrt{2*4000*(3.25*5452)/5280}$ = 163 mi

$a((19.066-19.033)/(98.3-98.633))/\text{rad}$ = -5.66 degrees s of e

marker: Citlaltepetl (Pico de Orizaba), 19.0164 -- 97.2667, 5636 meters

remove: $\sqrt{(69*(19.066-19.0164))^2+(65*(98.3-97.2667))^2}$ = 67 mi

viewed: $\sqrt{2*4000*(3.25*5636)/5280}$ = 166 mi

$a((19.066-19.0164)/(98.3-97.2667))/\text{rad}$ = 2.74 degrees

marker: Ixtaccihuatl, 19.183 -- 98.65, 5230 meters

remove: $\sqrt{(69*(19.066-19.183))^2+(65*(98.3-98.65))^2}$ = 24 mi

viewed: $\sqrt{2*4000*(3.25*5230)/5280}$ = 160 miles

$a((19.066-19.183)/(98.3-98.65))/\text{rad}$ = 18.48 degrees

marker: Volcan La Malinche, 19.233 -- 98.033, 4462 meters

remove: $\sqrt{(69*(19.066-19.233))^2+(65*(98.3-98.033))^2}$ = 20 mi

viewed: $\sqrt{2*4000*(3.25*4462)/5280}$ = 148 mi

$a((19.066-19.233)/(98.3-98.033))/\text{rad}$ = -32.02 degrees n of e

... coast mountains


```

marker: Volcan San Martin Pajapan, 18.316 -- 94.8, 1219 meters
remove: sqrt((69*(19.066-18.316))^2+(65*(98.3-94.8))^2) = 233 mi
viewed: sqrt(2*4000*(3.25*1219)/5280) = 77 mi
a((19.066-18.316)/(98.3-94.8))/rad = 12.09 degrees s of e

marker: Volcan San Martin Tuxtla, 18.55 -- 95.2, 1650 meters
remove: sqrt((69*(19.066-18.55))^2+(65*(98.3-95.2))^2) = 204 mi
viewed: sqrt(2*4000*(3.25*1650)/5280) = 90 mi
a((19.066-18.55)/(98.3-95.2))/rad = 9.45 degrees

marker: Cerro Santa Martha (Veracruz), 18.35 -- 94.855, 1680 meter
remove: sqrt((69*(19.066-18.35))^2+(65*(98.3-94.855))^2) = 229 mi
viewed: sqrt(2*4000*(3.25*1680)/5280) = 91 mi
a((19.066-18.35)/(98.3-94.855))/rad = 11.74 degrees s of e

marker: Cerro San Martin (Queretaro), 20.745 -- 99.970
remove: sqrt((69*(19.066-20.745))^2+(65*(98.3-99.970))^2) = 158 mi
viewed: ?? -
a((19.066-20.745)/(98.3-99.970))/rad = 45.15 degrees (out of limits)

marker: El Chichon (Chiapas), 17.35 -- 93.233, 1060 meters
remove: sqrt((69*(19.066-17.35))^2+(65*(98.3-93.233))^2) = 350 mi
viewed: sqrt(2*4000*(3.25*1060)/5280) = 72 mi
a((19.066-17.35)/(98.3-93.233))/rad = 18.71 degrees

marker: Cerro Zempoaltepec, 17.419 -- 95.983, 3396 meter
remove: sqrt((69*(19.066-17.419))^2+(65*(98.3-95.983))^2) = 188 mi
viewed: sqrt(2*4000*(3.25*3396)/5280) = 129 miles
a((19.066-17.419)/(98.3-95.983))/rad = 35.40 degrees (out of limits)

```

Cholula site identification:

19.66 degrees n of e -- The angle with **Nauhcampatepetl** defines a zenithal sunrise for July 27th (20.29 degrees).

32.02 degrees n of e -- The angle with **Volcan La Malinche** is the summer solstice sunrise of June 21 (31.94 degrees), for the condition of having the inclination of the Earth's axis at 30 degrees. I doubt the validity of this alignment, since all the other alignments are conformed to the current era.

Cholula era markers:

12.09 degrees s of e -- The angle with **Volcan San Martin Pajapan** defines an antipodal sunset for the start of a previous era, on April 19, 1492 BC (12.02 degrees), but under the current axial inclination.

11.74 degrees s of e -- The angle with **Cerro Santa Martha** (Veracruz) also defines an antipodal sunset for the date of the start of the previous era, on April

19, 1492 BC (and under the current axial inclination). **Cerro Santa Martha** is almost the same distance from the site as **Volcan San Martin Pajapan**

5.66 degrees s of e -- The angle with **Popocatepetl** defines September 8, 2349 BC (5.22 degrees).

Setting of the Pleiades -- In addition to the sunset alignment for September 8, 2349 BC, there are two alignments for the setting of the Pleiades in AD 200 -- 400 **Ixtaccihuatl** (18.48 degrees) and **El Chichon (Chiapas)** (18.71 degrees).

Cholula notes:

Except for the possible solstice marker under the condition of a 30-degree axis, all the alignments are conformed to the current axial inclination.

Monte Alban

center: Monte Alban, 17.033 -- 96.766				
event	axis 30 degrees date	angle	axis 23.5 degrees date	angle
-----	-----	-----	-----	-----
start 3114 BC era	Aug 12	19.67		15.40
start 2349 BC era	Sep 8	6.59		5.17
start 1492 BC era	Apr 19	15.18		11.88
start 747 BC era	Feb 28	-10.94		-8.56
solstice	Jun 21	31.53		24.65
Jup flare-up	Jul 9	30.01		23.47
Jup plasmoid	Jul 14	29.07		22.73
Jup strike	Jul 25	26.25		20.53
zenithal passage	Aug 16	17.93	Aug 4	17.89

I am including **Monte Alban** as a matter of reference. I have not checked this site against the mountains of Veracruz and the Valley of Mexico because it is too far south. **Monte Alban** is discussed in the chapter "Olmec Alignments."

Endnotes

Note 1 --

The short javascript program is available on line which can be used to find the location (in degrees from east) and time of sunrise and sunset for any axial inclination and latitude. Originally written to predict the angle of shadows for outdoor filming at various locations and dates.

Documentation: The program uses elements of spherical geometry to determine the location of the Sun. The year is divided up into two halves of 182 days each with the solstice of June 21 as day zero. Thus the quarter day is neglected. The actual calendar days of the equinoxes and solstices move two days in the year, because our calendar varies between 365 and 366 days. In this program the leap days are neglected, summer solstice is set to "day zero" and the remainder of the year is divided up into two 182-day segments.

Since the Sun travels a little over one degree on the ecliptic each day, a sunset will differ from sunrise by about a half degree at most (but considerably less near the solstices). Except for this, the program should be fairly accurate. Small differences in latitude or axial inclination will not significantly affect the results.

The angles are for sunrises. To find the equivalent sunset angle, find the difference between the current sunrise and the next day. One half of this difference, when added to a sunrise angle, will give a good approximation for the corresponding sunset angle in the tropics.

The program will on occasion crash at the equinox (a divide by zero problem). Live with it, or change the axial inclination from 23.5 to 23.45 degrees (the actual value).

[\[return to text\]](#)

Return to [\[Olmec Alignments\]](#) chapter.

Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()
units: million == 1,000,000; billion == 1,000,000,000;
AU == 93,000,000 miles.



Appendix D: Change of the Axis.

\$Revision: 42.5 \$ (axis.php)

Contents of this appendix: [\[An inclination of 25 Degrees\]](#) [\[Additional Changes\]](#)
[\[Cardona's Critique\]](#) [\[Calendars\]](#) [\[Retrocalculation\]](#) [\[Considering Mars\]](#)
[\[Considering Mercury\]](#) [\[Summary\]](#) [\[Endnotes\]](#)

And here we shall take up the demonstration, revelation, and account of how the axis changed three times since the end of the "Age of the Gods." (Just to paraphrase this in terms of the opening words of the *Popol Vuh*.) The need to question this became clear on reading an essay by Euan MacKie, which I will discuss further below.

An inclination of 25 Degrees

Let me suggest that after 3147 BC the inclination of the rotational axis of the Earth (to the plane of its orbit) might have been 25 or 26 degrees. The pyramids and the Sphinx, representing some of the earliest constructions, hint at this.

It is possible to suggest that the Sphinx was constructed to face the rising Sun at the solstice, when the current real Sun replaced Jupiter after Jupiter entered the asteroid belt at the end of the first dynasty in about 2860 BC (as I calculate it). If the inclination of the Earth's axis was 25 or 26 degrees, the most northerly location of the rising Sun, at the summer solstice, would occur at 29 to 30 degrees north latitude, which is the location of the Sphinx.

Assuming the virtual disappearance of Jupiter as the Midnight Sun after the end of the first dynasty, it could be suggested that the Sphinx was specifically constructed after the end of the first dynasty as a beacon to watch for the return of the Midnight Sun, Jupiter, which also traveled on the ecliptic, like the Sun.

Jupiter moves very slowly on its path around the zodiac. The location directly east from the Giza plateau would be where Jupiter was seen at the extreme of the ecliptic, and thus also at its earliest. If Jupiter had nearly disappeared, that is, had lost its giant lower mountain because it had entered the asteroid belt and

no longer looked like Osiris moving through the sky as a mummified form, then perhaps the Sphinx was an attempt to coax his return. That would place the construction of the Sphinx after the start of the second dynasty, after 2860 BC.

Colin Reader, in "Giza Before the Fourth Dynasty" JACF (2002), suggests that the Sphinx dates from the first or second dynasty -- long before the Giza pyramids were constructed (in the fourth dynasty). It existed before the building of Khafre's causeway and mortuary temple. The walls of Khafre's mortuary temple are wedged into the enclosing wall of the Sphinx temple (the temple actually is also a late construction). Khafre's mortuary temple was obviously built after the Sphinx.

The other suggestion for the placement of the Sphinx, might be as a vigil for Horus the hawk who had flown from east to west every day or night for 4000 years, although actually this was Saturn seeming to revolve around the Earth (due to the Earth's rotation). Saturn as Horus would also have appeared on the ecliptic, at least, apparently so. This concept might place the construction of the Sphinx at an even earlier time. A much earlier construction of the Sphinx (5000 BC to 9000 BC) was suggested by Robert Schoch, writing in *Voices of the Rocks* (1999), based on water damage. See the chapter "Pyramids and Henges" for a discussion on dating the Sphinx.

For the Giza plateau construction of the Sphinx a 25- or 26-degree inclination would suffice to suggest that the Sun traveled a completely different path at an earlier date. A 25- or 26-degree axial inclination could then be suggested as the initial condition of the inclination of the Earth's axis after release from Saturn in 3147 BC.

Saturn's inclination to its orbit is 26.7 degrees, but this is likely a numerical coincidence to the inclination of the Earth's orbit. It would always have been this value. The 25-degree axial inclination of the Earth is with respect to the new (and current) orbit, and would have been something different when the orbit of the Earth paralleled the orbit of Saturn. [\[note 1\]](#)

A 25-degree inclination accounts well for the construction of the Sphinx as resulting from a change in the celestial display of the mountain of Jupiter which disappeared in about 2860 BC. At that time Jupiter entered the asteroid belt and its huge lower coma disappeared. The coma would have become smaller in diameter. It is almost certain that this was the crisis that exchanged the second dynasty for the first. Current estimates list the end of the first dynasty as 2890

BC. We think political influences, but of overriding importance in antiquity was religious concepts.

It accounts well, however, if it can be agreed that the Egyptians considered the overhead passage of the Sun as considerably more important than its easterly rising. This duplicates the attitudes of the Olmecs of Mesoamerica, who, following the theories of Clyde Winters, likely had North African origins.

Nekhen, the center of early religious activity in Egypt, is at 25.1 degrees north latitude. At Nekhen the Sun would have traveled to stand directly overhead (90 degrees) at noon at the spring and fall equinox if the Earth's axial inclination had been 25.1 or 25.2 degrees. This is because Nekhen is located at a latitude equal to the axial inclination of the Earth.

About Nekhen, Wikipedia reports:

"[Nekhen] was the religious and political capital of Upper Egypt at the end of the Predynastic period (c. 3200-3100 BC) and probably also during the Early Dynastic Period (c. 3100-2686 BC). Some authors suggest occupation dates that should begin thousands of years earlier."

As I have previously pointed out, the inclination of Earth's axis and the rotational axis of Saturn did not match in the era before 3147 BC. The ancients insisted that the earlier polar apparition rotated in a circle "without cease," but this would have consisted of Saturn traveling in a circle in the north sky. It would not be the rotation of Saturn about itself.

It is the difference in the inclination of the rotational axis of Earth and Saturn which would have seemed to make Saturn rotate in the sky. The inclination of the rotational axis of the Earth to this original orbit (inclined at 4.51 degrees to the Sun's equatorial, like Saturn's orbit) would thus have been 28.5 degrees. The difference from the absolute inclination of Saturn is not much, only about 2.5 degrees. But this would result in a 5-degree radius circle that Saturn would have traveled in the north sky. This is still 10 diameters of the Moon.

Despite a certain elegance of the above speculations, there are problems with these concepts. For one, the axial inclination was 30 degrees after 1492 BC. The 30 degree inclination might have been in effect since 3147 BC (although I doubt that). Calendars and orbits will not indicate any of those possible changes. The only secondary indication will be the occupation by humans of the region above

the Arctic Circle, but this will be influenced by the overall climate, which was considerable better before 1492 BC.

At this point I would suggest that after 3147 BC the Earth might have had an axial inclination of about 25 or 25.2 degrees. Released from Saturn, it started on an orbit around the Sun, where the location of the release constituted the aphelion of the orbit -- May 28th, apparently. This would also be the location Earth would return to yearly until the orbit changed again at a later date. [\[note 2\]](#)

When did the inclination change to 30 degrees? I would suggest that most likely this happened in 1492 BC. The Earth apparently not only tilted to a horizontal position, but it took the Earth 13 months to upright itself again. There are enough incidental memories and legends to substantiate this last. The number of months varies, but is always much larger than expected. The massive gyroscopic reaction torque suggests the possibility of large changes in orbital parameters, and in fact the Earth's orbit became 30 percent larger.

Additional Changes

The need for considering possible changes in the axial inclination was initiated by an essay by Euan MacKie, "Megalithic Astronomy and Catastrophism," in *Pensee* magazine (1974). MacKie based his information on the research of Alexander Thom as reported in Thom's *Megalithic Sites in Britain* (1967).

Absolutely typical of the befuddled attitude expressed by both MacKie and Thom, which does not seem to ever question what both learned in grade school, is the insistence on determining calendars over and over again with 300 separate alignments of stones, and the insistence that these were all to the benefit of farmers, "so they would know when to plant."

So I tackled the question of why so many stone arrays and circles needed to be set up in Great Britain over a period of 200 years, and then abandoned almost completely. I looked at the possibility of a change in the axial inclination (although generally humans do not care about that), the path of the Sun and the path of the Moon (although, again, no one cares), and finally, the possibility that this represented another set of destructive close calls by Mars.

I should warn the reader that I do not, in the following, reach a definitive conclusion about megalithic astronomy, or the inclination of the Earth's

rotational axis. Intrusions by Mars (but perhaps Mercury), however, fit well with other archaeological data.

Introduction



[Image: Standing stones at Ballochroy, Scotland. After stonesofwonder.com.]

MacKie discusses two locations in Scotland, three standing stones at Ballochroy (55.70 north latitude), aligned parallel with three mountain peaks 18 miles (29 km) away, and one at Kintraw farm (Argyll) at 56.12 north latitude facing southwest to a mountain peak 28 miles (32 km) away.

MacKie introduces his article with the following:

"The dating of the megalithic observatories to the period from about 2000-1800 B.C. seems fairly secure and puts them firmly into the epoch preceding Velikovsky's major cataclysms of the 15th century B.C. In spite of this, the alignments so far identified do fit well with the present celestial system retrojected to the period concerned."

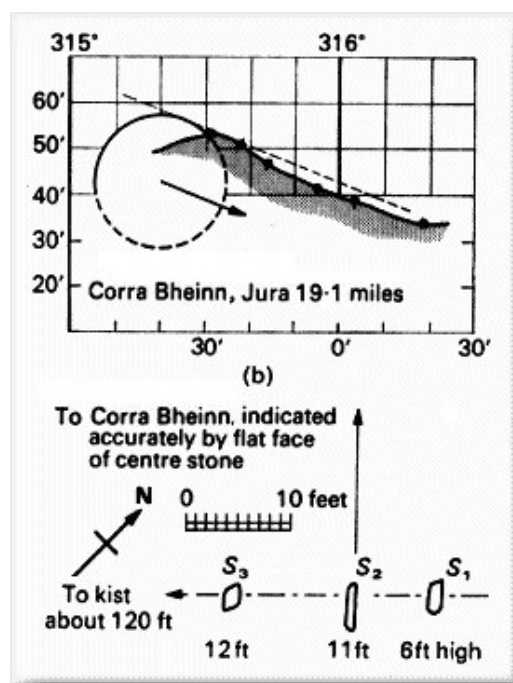
Despite further hemming and hawing, this is how the article was understood by followers of Velikovsky: it dismissed Velikovsky's claims to changes in the inclination of the Earth's axis, changes in the length of the year, relocation of the geographic pole, and a number of other changes. I will attempt to clear some of this up.

Let me also point out that Dwardu Cardona, in "The Cairns Of Kintraw" (*Kronos* 1979), and in a second article, all but demolished the contention of a megalithic alignment with the Sun at the solstice at these particular locations, summing it

up as, "... given enough stones and a mountainous horizon, some celestial occurrences are apt to line up with something," and this despite the fact that Thom initially considered these two locations (Kintraw and Ballochroy) to be the most important solstitial sites. More on this further below.

I was similarly ready to dismiss the alignments found by Thom, especially since a perusal of Thom's writings shows him expanding his ideas well beyond what might otherwise be acceptable. One secondary result of his investigations has been the definition of a "megalithic yard," for which, more than anything else, he has been faulted. But a megalithic yard is easier to mock than his proposed alignments, since almost no one knows anything about axial inclinations, solar declinations, and the equation of precession.

The claims that megalithic alignments like these are seen throughout the world during this period (meaning, as usual, throughout Europe or the UK), are not meaningful. This could easily be another resurgence of the insane interest in circles of our ancestors which had been interrupted in 2193 BC.

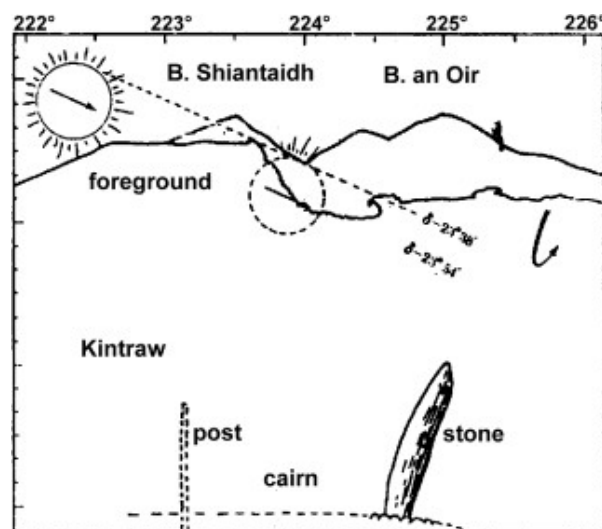


[Image: Progress of the Ballochroy solstice sunset; after Thom.]

The evidence brought forward by Thom is that the inclination of the Earth's rotational axis with the normal to the plane of the orbit (which I will simply call "inclination" or "axial inclination") could be derived from today's value of 23.5 degrees in a series of minute changes resulting in an "average" inclination of

23.9 degrees -- 0.4 degrees more than today. Suggesting a total change of 0.4 degrees in 4000 years is an extraordinary uniformitarian claim. MacKie attempted to verify this for the two locations discussed here, one for a summer solstice position at Ballochroy, the other for a midwinter solstice at Kintraw.

I had established earlier in these texts that the inclination of the axis was 30 degrees before 685 BC, and was ready to suggest that this might have continued without interruption from 3147 BC. Here, however, is different information, comfortably fitting Establishment assumptions that the inclination of the axis has always been the same as today, or nearly so.



[Image: Standing stone at Kintraw, Scotland. After Thom(?).]

What I should point out, first, is that the obsession with finding these solstitial sunsets existed only in the period from 2000 BC to about 1800 BC, and second, that the reported values of the axial inclination (actually the Sun's declination from the equatorial, which accounts for uneven horizons) are not all that close to the expected values. Retrocalculation from today places the best values in 1800 BC, says Thom (others have suggested 1600 BC). For the three standing stones at Ballochroy, MacKie arrives at a series of values which ranged from about 20 degrees to 24 degrees. Thom used an "averaged" inclination of 23.9 degrees, only 0.4 degrees different from today, but apparently based on a wider range of observations than these two.

The dating via a retrocalculation is based on observations made in 1909 of a slight tendency for the Earth's axis to move to the vertical. The span of observations for this tendency is less than a decade, but the data is expected to

hold for 3800 years into the past. The total change during that 3800-year period amounts to less than a half degree -- about the width of the Sun. Carbon-14 dating of the sites results in dates of about the same order. This is a fortunate coincidence for the researchers, but of course has nothing to do with the inclination of the Earth's axis.

A Critique by Cardona

In two articles in *Kronos* in 1979, "The Stones of Ballochroy" and "The Cairns of Kintraw," Dwardu Cardona critiques the alignments cited above. About Ballochroy Cardona writes:

"In fact, despite the latitude of 55.7 degrees, the 90 degree angle which separates the two sunsets at this locality as it is shown in Thom's plan, is only a myth. Neither the stone row nor the orientation of the stones 'points' directly to either of the two sunsets under consideration."

The "90 degrees," mentioned above, is derived from the fact that the solstitial sunsets at midsummer and midwinter are each 45 degrees north or south of west, and thus are here separated by 90 degrees. But this is true for today's inclination of 23.5 degrees. For an axial inclination of 23.9 degrees the summer and winter sunsets would be 91 or 92 degrees apart. But there is more.

Cardona concludes with:

"The actual sunsets do take place approximately 90 degrees apart but in order for the stone arrangement to indicate this accurately, the entire plan would have to be rotated clockwise by about 5 degrees."

For the sightings at Kintraw, Cardona points out that the intended target, an island 18 miles away, could not be seen from the location of the menhirs. Additionally he writes:

"Then, in 1969, Thom gave us a new diagram with a new set of lines. The line from the twelve foot menhir which runs through the centre of the stone 'circle' is no longer shown as indicating Beinn Shiantaidh. It is now shown as pointing to Dubh Beinn. What was a solar sight line has now become a lunar one."

The comment about a 5-degree rotation immediately suggested to me that perhaps the Moon was the sighted object, since the Moon runs about 5 degrees

off the ecliptic at its greatest divergence from the path of the Sun. But I am not sure of the sense of Cardona's comment about rotating the site by 5 degrees. At least clockwise would be the right direction.

But also I should note that if the inclination of the axis of the Earth were 25.5 degrees, then the solstitial setting of the Sun would be at 49.8 degrees north of west, 5 (4.78) degrees more than the sunset for a axial inclination of 23.9 degrees (or 23.5 degrees).

It is at this point that Cardona makes his observation about "... given enough stones"

Skipping most of these critiques, let me instead simply point to the phrasing "to be rotated by five degrees" for Ballochroy and the suggested lunar alignment for Kintraw. From these it seems likely that the location of the solstice might have been 5 degrees more than the value supposedly observed from these alignments. Considering that Thom held these two sites to be the most valid of the 300 studied, the critique could be extended to all the other data, and suggest that none of the other observations are valid alignments of solstice sunsets for an axial inclination anywhere near 23.5 degrees.

Calendars

The expressed notion of these two reputable researchers and astronomers is that all the solstitial markers (throughout Scotland and England) represented efforts at establishing a calendar. It is hard to take this seriously. We are even told that this was to the benefit of local farmers, who would then know when to plant their crops, and even, as one unrelated astronomer of note claims about calendars, "when to harvest." Do reputable astronomers ever plant flowers in their front yard? [\[note 3\]](#)

Certainly it is not likely that any of this represented efforts at establishing a calendar, despite the fact that China, Babylon (in a late retelling), the Olmecs, and the Hebrews (as implied in Exodus) all recall settling on a calendar after 2349 BC -- and in many cases settling on a revised calendar. But, more important, calendars are not used by farmers, who plant by the weather, but are used to determine religious feast days. Archaeologists forget that our ancestors were absolutely obsessed with religious observances.

The date of the equinox is much easier to find than the date of the solstice. In fact, from what we know of ancient calendars, it appears that the year almost universally started with the fall equinox, or with the culmination of the Pleiades, two days later -- even with later revised calendars. The culmination of the Pleiades also remained a major religious feast day. For this a calendar, or the determination of the date of the solstice, would not be needed. It would be very obvious from a look at the skies.

The repeated sighting locations for the solstitial sunset (if these are what these standing stones represent) look like absolutely desperate attempts at determining the course of the Sun as it changed its travel in the sky. I should add "or something," because maybe it was not the Sun that was being tracked.

Retrocalculation

The reader will have asked, how can the uniformitarian approach determine that 1800 BC is an exact extension backward of today's celestial parameters and conditions? This is called "retrocalculation" (Mackie calls it "retrojection") and involves the conviction that the year has always been 365.24 days long, that the Moon has always taken 29.5 days to complete a month, and that the established precession of the equinox has always been in effect. Thus Thom will claim that we are looking at the sky of 1800 BC, which, however, cannot be identified from the locations of the Sun or Moon, but only from the stars -- of which he identifies one, Spica, which he later withdraws from consideration.

It is this last, the precession of the equinox (along with the inclination of the axis), which determines where the Sun would rise or set against the backdrop of the stars. As an exercise in applied uniformitarian astronomy, this is easy to find. So the proper coincidence of horizon sunsets at the summer solstice in the remote past is simply the application of the current value of the precession (measured, for example, in years per degree, as below) to today's skies. That will rotate the skies (the stars) about 52 degrees along the horizon in order to reach 1800 BC -- although there is no way to check that.

Thom's value, determined from AD 1967 (when his book was published), would be:

$$(1800 + 1967) / 72 = 52.3 \text{ degrees}$$

This value, which was independently derived by Thom and by others, can be checked against what I hold to be the case: (1) there was no precession of the equinox before 747 BC, and (2) in 685 BC the dome of the skies moved 15 days forward.

$$(747 + 1967) / 72 + 15 = 52.7 \text{ degrees}$$

Is that close enough? The change in the equinox in 685 BC, which has been solidly established in previous texts, is completely responsible for presenting to archaeologists a picture of absolute uniformity.

I should point out that Thom's calculations are actually not quite as simple as this. He uses a slight adjustment in the value (in degrees per year), originally derived by Simon Newcomb between AD 1900 and 1909, and assumes that this can be extended backward in time by nearly 4000 years. The problem is that this adjustment formula has almost no guarantee of validity, both because of the limited data on which it is based and especially since historically the precession of the equinox has been recognized as varying. [\[note 4\]](#)

I must say I have no idea how such certainty about the date of 1800 BC was arrived at. But it is of great interest that the 15-day shift into the future in 685 BC can account for all of the change since 1800 BC.

Considering Mars

I have considered the possibility that the monuments might have something to do with the Sun, or with the Moon, but except for the muddled set of changing observations, these two tell nothing. I therefore considered Mars and Mercury. This possibility has already been broached in the chapter "The Day of the Dead." It involves close approaches of Mars (or Mercury) during the end of the Early Bronze Age.

It involves one of the sets of dates for Middle Eastern destructions recorded by Claude Schaeffer in *Stratigraphie Comparée et Chronologie de L'Asie Occidentale* (1948). He lists (among other things) a date of 1700 BC when many urban centers in the Middle East were destroyed. The date of 1700 BC is one from his series of dates which cannot easily be moved to a different period, for instance, by imposing our knowledge of the fictional Greek "Dark Ages."

To be included in Schaeffer's listing of cataclysmic archaeological conditions, the disturbing elements had to include earthquakes and firestorms. This would signify close contacts with Mars -- very close. This had been the case for a period of 300 years some 1200 or 1300 years earlier starting in about 3070 BC. This would happen again for a period of (only) 120 years, some 1000 or 1100 years later, starting in 806 BC. Others have pointed out that fires were the predominant cause of destruction.

Adding the known starting date (3067 BC) for the close passes of Mars after 3147 BC, and the start of close passes in the 8th and 7th century BC (806 BC), and dividing by two, results in a starting date of 1936 BC as a likely start of this set of "contacts" by Mars. This falls in the center of Thom's era of investigation, and will match Schaeffer's date if this represents a midpoint.

I am suggesting, therefore, that close passes by Mars (or Mercury) were the concern among the Scots and many other people -- China, India, and portions of northern and central Europe.

Why would the solstice be involved, if indeed it was? Actually, only two dates would qualify for a close contact by Mars. By design that would be the equinox locations, causing Patten and Windsor to think that all the various Earth destructions were all caused by Mars. I think the solstice had nothing to do with any of the monumental constructions.

The condition of Mars overrunning the orbit of Earth would continue as long as the perihelion of Mars's orbit fell inside the orbit of Earth. Lynn Rose and Raymond Vaughan in 1994, in proposing a solution to the data of the *Venus Tablets of Ammizaduga*, reported that in 670 BC (some years after the nova event of 685 BC) the eccentricity of the Earth's orbit changed significantly (from 0.10 to 0.0+). This means the orbit of Earth became nearly circular, and no longer overran the orbit of Mars.

Considering Mercury

There are several problems in assigning Mars as the culprit. I have already assigned Mars to the destruction of Sodom and Gomorrah in the period after 1936 BC. Sodom and the other cities are at 31 degrees north latitude. Scotland is at 56 degrees latitude. It is just unlikely that Mars would move this far north on any return approach during this 300 year period. I would suggest that it is

Mercury, the companion planet to Mars since both were first released by Saturn at the edge of the asteroid belt in 3067 BC.

This is, in fact, the period where Mercury first becomes prominent (in the Mediterranean region) as a deity and as a personal name (Nagu). And it is during this period, circa 2000 BC to 1800 BC, that we see the destruction of hilltop forts in northern Europe, and especially Scotland. We don't know the actual dates, but they can be surmised. This might also have happened during the 8th and 7th century BC.

No reputation of insane destructiveness became attached to Mercury. First because the hilltop forts or citadels were limited in number and as targets. These were not the populous cities of the Eastern Mediterranean region. Some 60 stone structures were damaged in Scotland, with additional ones in northern Europe (there are about 200 in total).

Summary

Is the conviction of uniformitarian astronomers that the Earth's axis was inclined (as it was supposed to be) at 23.9 degrees in 1800 BC correct?

Not likely. All indications are that a different axial inclination was in effect since remote antiquity, and perhaps since before the beginning date of the era of interest to Alexander Thom.

Can this be squared with my conviction that after 1492 BC the inclination of the axis would have to be 30 degrees, and remained at that value until 685 BC?

It can, although that is another matter. I am on an entirely different path from Thom and MacKie. I can only reconcile their finding as some sort of a mistaken reading of the facts. Frankly, I do not see how the finding of an "average alignment of 23.9 degrees" could be derived except through a driving conviction in the dominant paradigm of uniformitarian archaeology. It is a convincing fiction only in the eyes of those who wish it to be that way.

What might be the reason for the 200 years of activities, erecting circles and lines of large standing stones as well as single stones, by the tribes of Scotland (and apparently throughout northern and central Europe)?

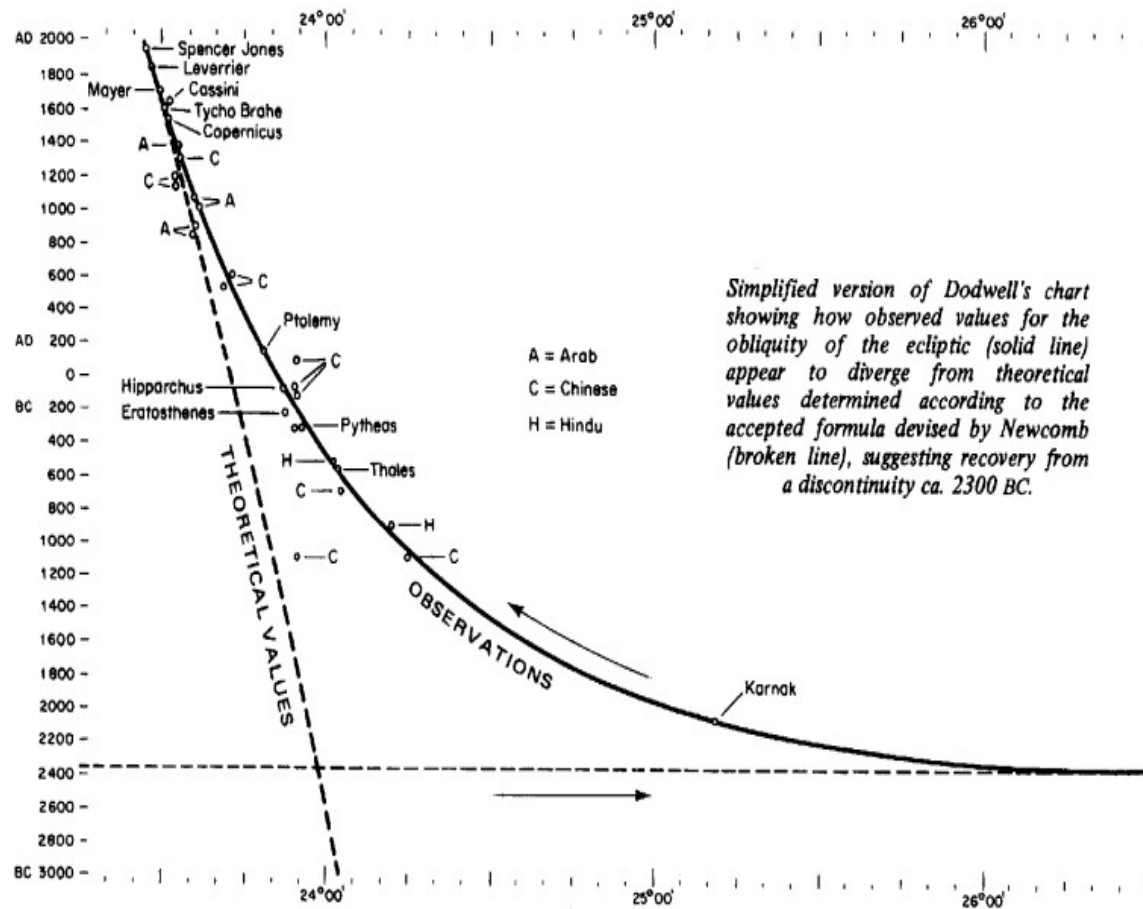
It was most likely the interference of Mercury with Earth between 2000 BC (I calculate this as 1936 BC) and 1800 BC. Since Mercury was originally located above Mars, any likely contact with Earth would be at a higher latitude from electrical contacts by Mars.

Endnotes

Note 1 --

Quoted from <http://www.science-frontiers.com/sf030/index.htm>:

"Australian astronomer G.F. Dodwell has analyzed the observational records compiled for the many gnomons erected all over the civilized world during the past 4,000 years. Gnomons are vertical markers that cast shadows from which the local latitudes can be computed. (All one needs are the measurements of the shadow lengths on the longest and shortest days of the year.) The earth's tilt or obliquity-of-the-ecliptic may also be calculated from gnomon data -- and therein lies the anomaly. The tilt of the earth's axis is supposed to vary cyclically between 22 and 24.5° over a period of some 40,000 years due to the pulls of the moon, the sun, and the planets on the earth's equatorial bulge..."



[Image: Obliquity data since 2300 BC, after Dodwell.]

"Tilt angles computed from ancient gnomon observations deviate markedly from the theoretical curve. The alignment of the ancient Egyptian temple at Karnak and other oriented sites extend the deviation toward the date 2345 B.C. [This is the asymptotic date for the plotted data.] Either the ancient observations were systematically in error all over the world or the earth's tilt angle changed in historical times."

Dodwell's earliest inclination is 25.2 degrees, derived from a pylon at the temple of Karnak, built in 2045 BC. Dodwell assumes an exponentially declining sine curve for the values, as if the Earth was impacted in about 2345 BC. Not entertained is the possibility that the Earth's tilt always was 25.2 degrees.

[\[return to text\]](#)

Note 2 --

Since the orbit of Saturn is inclined at 4.51 degrees to the Sun's equator, and the Earth's current orbit is inclined at 7 degrees to the Sun's equator, there is a 2.49 degree difference between the inclination of the Earth's original parallel orbit to Saturn's orbit. This places the inclination of the Earth's axis at 28.5 degrees to the plane of the orbit before 3147 BC.

Compare this to Saturn's inclination to its orbit, which would not have changed since 3147 BC, and it will be seen that the axis of rotation of the two planets did not coincide, although the measures (26.7 and 28.5 degrees) are close, as seen in the sky they are still two finger-widths apart in radius and four in diameter.

The aphelion of the Earth's orbit today is July 4th or 5th (it varies with leap years). The equivalent date of May 28th is described in Chapter 34.

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Note 3 --

Phillip Pait, in *Death From the Skies* (2008), which sports a *Reader's Digest* version of traditional and consensual knowledge -- what everyone supposedly knows -- writes:

"... astronomy is actually the world's oldest profession: early agricultural civilizations needed to know when to plant their crops and when to harvest, and the changing skies gave them their clues."

"The Sun was worshipped, and the Moon. This evolved into the belief that all the gods lived in the sky."

Could he be any more wrong? The Sun and Moon have never been worshipped anywhere except in the imaginations of astronomers. Additionally, I would award the honors of being "the world's oldest profession" not to astronomers, but to a group of people of a different occupation.

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Note 4 --

Euan MacKie reports:

"... this modern motion, when projected back into the past with the aid of the Newcomb formula, reveals that a solstice of 23 degrees 54 minutes existed at about 1800 B.C., a date which fits very well with the date of the

standing stones derived from independent archaeological evidence [Carbon-14 dates]. Clearly, powerful arguments would need to be marshalled against this apparently neat coincidence if a catastrophic interpretation were favored."

Here is the powerful argument: The Newcomb formula determines the multiplier for precession of the equinox as, $(50.2564 + 0.0002222) * \{\text{years}\}$, where "50.2564" is the number of seconds of a degree per year, thus 50/3600 degrees, and .000222 is a very small additional multiplier. The inverse of 50/3600 is 72, which is the number of years per degree, and the value I used.

From <http://www.binaryresearchinstitute.org/>, a site which disputes Newcomb's formula, we have:

"Calculated precession rates over the last 100 years show increasing precession rates which produce a declining precession cycle period. There is no reason the relatively constant mass of the Sun and Moon torquing the Earth should produce such figures."

The idea of "the Sun and Moon torquing the Earth" is just made-up science nonsense (first introduced by Newton), which the above quoted text actually acknowledges. I have shown that it is the Moon's repeated entry into the Earth's plasmasphere which is at cause, and therefore precession is a function of the size of the Earth's plasmasphere. This, in turn, is controlled by the Sun's electrical field at the exterior of the Earth's plasmasphere.

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*Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()
units: million == 1,000,000; billion == 1,000,000,000;
AU == 93,000,000 miles.*



Appendix E: Polar Relocations.

\$Revision: 42.8 \$ (flip.php)

Contents of this appendix: [\[The Source of the Problem\]](#)
[\[Velikovsky's Moving Pole\]](#) [\[Data from 747 BC\]](#) [\[Earth as a Gyroscope\]](#)
[\[Data from 1500 BC\]](#) [\[Flipping the Pole in 1500 BC\]](#)
[\[Lack of Glaciation in Siberia\]](#) [\[Frozen Mammoths in 1500 BC\]](#)
[\[Other Polar Relocations\]](#) [\[Endnotes\]](#)

It is ubiquitous for the oldest legends to state that the Earth at one time flipped over, although this is also stated as the interchange of north and south compass directions, or east and west. Velikovsky's *Worlds in Collision* includes many examples (I'll list some below), but ultimately they are confusing, for no particular time period is pointed to. Most are generic statements, often introduced with "at one time."

Velikovsky attempted to use this information to suggest that the Earth indeed did turn over, and placed it in the era of 1500 BC, during the Exodus of Moses. There are only a few references which might point to 1500 BC, and even if coupled to the devastation and orbital changes of 1492 BC, they do not add up.

The Source of the Problem

The Earth never turned over, although it likely did so partially. But it sure looked like the Earth flipped over: the compass directions were interchanged, and the Sun now rose where it had set before. I'll suggest that nearly all the references to a change in compass directions, or the Earth turning over, refer to the events of 3147 BC. Other changes refer to 2349 BC. The details of the narratives almost always point to the actual events, even if dates are never given.

For people throughout the world, who understood the large globe above the north horizon as a God who was attacked by another in 3147 BC and subsequently removed to the night skies of the south, the scenario was entirely

different from our concepts. What was seen was the sudden relocation of the land ("earth") in the north to a location in the south. Saturn had been seen from below, surrounded by its rings. When Saturn was moved to the south (being flung away from its close orbit around the Sun), it took on a completely different look.

The Earth, released from the grip of Saturn, immediately started to move up toward the Sun. Within weeks or months Saturn was seen from a completely different perspective. For the first time Saturn was seen with its rings edge-on or nearly so. The change over a period of weeks or months was noted: Saturn teetered, and fell over. Saturn -- "the land" -- had fallen, had flipped over.

The fifth-dynasty Egyptian tomb texts of Unas (2345 BC) relate that his majesty, Osiris, died when he fell on his side at the riverbank. The river is the ecliptic, not the Nile.

The Maya *Chilam Balam* books read,

"Then Oxlahun-ti-ku [Saturn] was seized, ... and he was (thrown) on his back as well."

The removal of Saturn to the south skies was also seen as a reversal of north and south, or east and west. But there was no "east" and "west." That is a modern concept. There was only the main direction where the God resided, or the land existed, and the left and the right.

All the legendary snippets which have come to us have been translated to our conceptual base, or already recast in terms of east and west. In Mesoamerica, at a much later time, the main cardinal direction was the east where all the planets and stars could be seen to rise throughout the year. At 20 degrees latitude the Sun and planets do not swing as wildly between southeast and northeast in rising as they do at northern latitudes. The north and south in Mesoamerica were known as "the left" and "the right" (east was the forward direction). One can easily translate such directional concepts to the period shortly after 3147 BC, when the left and the right direction had interchanged.

There are similar concepts of "rising" and "setting" which have been altered to what we consider the correct order of nature. But, as Talbott and Cardona have pointed out, we use "rising" (and even "east") and "setting" for words that originally meant "brightening" and "dimming," as Saturn was experienced first during the night and then during the daytime.

Lastly, once we arrive in the period after 1500 BC, we have to allow for metaphorical use of "the Earth turning over" as a substitute for "calamity." The simile is a giveaway. The Egyptian scribe Ipuwer [page 120 of *Worlds in Collision*, Pocket Books edition] wrote (after 1500 BC), "the land turned round like a potter's wheel." But Velikovsky inserts the word "over" in brackets after the first quoted use of Ipuwer's "turned round." A potter's wheel does not "turn over," it rotates. Subsequently Velikovsky simply quotes "turned over," rather than "turned round."

[page 88] *"According to the Lapland cosmogonic story ... the angry God spoke, 'I shall reverse the world, I shall bid the rivers flow upward; I shall cause the sea to gather itself up into a towering wall which I shall hurl upon your wicked earth-children, and thus destroy them and all life. ... (Jubmel) with one strong upheaval, made the earth-lands all turn over.'"*

[page 104] *"The tradition of the Cashina, the aborigines of Western Brazil, is narrated as follows; 'the lightnings flashed and the thunders roared terribly and all were afraid. Then the heaven burst and the fragments fell down and killed everything and everybody. Heaven and earth changed places. Nothing that had life was left upon the earth.'"*

The references are both to the events of 3147 B and 2349 BC. The "towering wall" is the fall of the Absu in 2349 BC. Similarly "bursting of heaven" details 2349 BC.

[page 119] *"Pomponius Mela, a Latin author of the first century, wrote: 'The Egyptians pride themselves on being the most ancient people in the world. In their authentic annals ... one may read that since they have been in existence, the course of the stars has changed direction four times, and the sun has set twice in the part of the sky where it rises today.'"*

The reference is to the brief reversals of the travels of the Sun, twice in the 7th and 8th centuries BC, well within memory. Others had been forgotten. Herodotus presented the same information as Pomponius Mela in the book *Histories*. The change in the direction of the Sun's travel accounts also for the four changes in the dome of the stars. There is nothing in this statement that the reversals were permanent. The movement of the stars was very real, however.

[page 120] *"The Magical Papyrus Harris speaks of a cosmic upheaval of fire and water when 'the south becomes north, and the earth turns over.'"*

The reference is to events of 3147 BC.

[page 120] *"The texts found in the pyramids say that the luminary 'ceased to live in the occident, and shines, a new one, in the orient.' [Velikovsky adds:] After the reversal of direction, whenever it may have occurred, the words 'west' and 'east' were no longer synonyms, and it is necessary to clarify references by adding: 'the west which is at the sun-setting.' It was not mere tautology, as the translator of this text thought."*

The reference is to events of 3147 BC, especially if "a new one" is correctly translated. The "new one" is Jupiter.

[page 121] *"In the Ermitage Papyrus [Leningrad, III6b recto] also, reference is made to a catastrophe that turned the 'land upside down; happens that which never (yet) had happened.'"*

Velikovsky added:

"It is assumed at that time -- in the second millennium -- people were not aware of the daily rotation of the earth, and believed that the firmament with its luminaries turned around earth; therefore the expression, 'the earth turned over,' does not refer to the daily rotation of the globe. Nor do these descriptions in the papyri of Leiden and Leningrad leave room for figurative explanation of the sentence, especially if we consider the text of the Papyrus Harris -- the turning over of earth is accompanied by the interchange of the South and North Poles."

True, these are not 'figurative' descriptions. They were actual, but the references are to events of 3147 BC. Poles were not known to the ancients. Directions were.

[page 121] *"Harakhte is the Egyptian name for the western sun. As there is but one sun in the sky, it is supposed that Harakhte means the sun at its setting. But why should the sun at its setting be regarded as a deity different from the morning sun? The identity of the rising and the setting sun is seen by everyone. The inscriptions do not leave any room for misunderstanding: 'Harakhte, he riseth in the west.'"*

"The Sun" is generally misinterpreted as our current Sun. In most societies "the Sun" was Jupiter during hundreds of years after 3147 BC. But the sun which rises in the northwest is Saturn. Saturn rotated counterclockwise in a circle around the North Pole. During the day it would show up faintly in the northeast,

like the new moon against the blue sky, and then travel counterclockwise above the pole star.

At nightfall Saturn would be in the northwest, and would brighten, because it was now illuminated by the (normal) Sun. This is the location, of course, of the setting of the normal Sun, at least in summer at northern latitudes. Saturn would then proceed to rotate toward the east, below the pole star. This is also why many nations of the eastern Mediterranean started their day at nightfall.

This is the confusion we see about the later (regular) Sun rising where previously it had set. It might also apply to Jupiter which traveled on the ecliptic, and thus would be seen to rise in the east or northeast -- not in the northwest where Saturn had first brightened -- in effect rising.

[page 122] *"Plato wrote in his dialogue, The Statesman: 'I mean the change in the rising and the setting of the sun and the other heavenly bodies, how in those times they used to set in the quarter where they now rise, and they used to rise where they now set. ...'"*

This is a very general statement, which could be in reference to a number of eras in the past. The "heavenly bodies" is our terminology. What Plato meant is unsure. Probably he meant that Saturn used to "rise" -- that is, brighten -- while in the northwest at the start of nightfall.

[page 122] *"According to a short fragment of a historical drama by Sophocles (Atreus), the sun rises in the east only since its course was reversed. 'Zeus ... changed the course of the sun, causing it to rise in the east and not in the west.'"*

"Not in the west," is added to the concept of the change in the Sun. Zeus here is Jupiter, who removed Saturn (the "Sun") from the northwest in 3147 BC and substituted himself (as the "Sun") during the following 500 years, but now appearing (as "rising") in the east skies as the Earth overtook Jupiter on its travels on the ecliptic. Every night, for months, Jupiter would also travel from east to west across the night sky.

There is a similar problem with the Greek name for the lands northwest of the eastern Mediterranean, "Europa" which means "land of the sunrise." This has nothing to do with the "Sun" rising in the west. It is the brightening of Saturn (the "Sun") before 3147 BC seen in the northwest from Greece. It is amazing

that these concepts were extant nearly 3000 years later (and the name is still in use 5000 years later).

[page 124] *"Caius Julius Solinus, a Latin author of the third century of the present era, wrote of the people living on the southern borders of Egypt: 'The inhabitants of this country say that they have it from their ancestors that the sun now sets where it formerly rose.'"*

[page 125] *"In the Syrian city Ugarit (Ras Shamra) was found a poem dedicated to the planet-goddess Anat, who 'massacred the population of the Levant,' and who 'exchanged the two dawns and the positions of the stars.'"*

I would guess this is Venus and the "massacre" refers to the blood in the sky (the "Day of the Dead") in 2349 BC. The "two dawns" is then likely a reference to the destruction by Venus in 1492 BC, although I have no idea what that is about, except, as I have earlier suggested, the fact that the Earth perhaps seemed to have partially inverted at the time of the Exodus. The apparent near inversion was due to the lack of sunlight, and the change in climate, which lasted some 40 years as the Bible and Mesoamerica tell.

[page 120] *"The reversal of east and west, if combined with the reversal of north and south, would turn the constellations of the north into constellations of the south, and show them in reversed order, as in the chart of the southern sky on the ceiling of Senmut's tomb. The stars of the north would become the stars of the south; this is what seems to be described by the Mexicans as the 'driving away of the four hundred southern stars.'"*

The "four hundred stars" ("400 lost boys") are recognized from Mesoamerican (Maya) sources as the Pleiades as well as all of the southern stars which showed up at the same time in 2349 BC. But "400" generally meant "lots of" in Mayan; it is often translated as "millions." But this probably deals with the change in the look of the night sky in 685 BC, which I have detailed in the chapter "The Sibylline Star Wars."

The graphic depictions of stars by the Egyptians have a long tradition of utter disinterest in the heavens. Starting from the sixth dynasty most often stars are depicted as so much wallpaper in tombs. Consider also the inaccuracies of the Egyptians in depicting the circumpolar constellations in circa 1500 BC, and the use of 24-day months (shown in Senmut's tomb, circa 940 BC). The reversal of the southern constellations cannot be taken seriously. It could only be accomplished by stopping and reversing the Earth's spin. Let me point out that if

the Earth turns over, the Sun and the stars would still rise in the east, and in the same order.

On the other hand, a reversed chart does not surprise me at all. I should point out that star charts manufactured today often reverse directions also, and have done so consistently since late antiquity.

[page 126] *"The Eskimos of Greenland told missionaries that in an ancient time the earth turned over and the people who lived then became antipodes."*

[page 126] *"In the Tractate Sanhedrin of the Talmud it is said: 'Seven days before the deluge, the Holy One changed the primeval order and the sun rose in the west and set in the east.'"*

This is the condition directly before and after 3147 BC, when Jupiter yanked Saturn from its orbit, while the Earth, released from below Saturn, continued on a path around the Sun. Saturn, held to be the Sun ("Ra") was seen in the northwest before relocating to the south skies and diminishing in brightness. Jupiter (the "Bull of heaven"), outside the orbit of Earth, had already blazed up, and subsequently was recognized as Ra, the Sun.

I have earlier taken note of the fact that Jupiter apparently blazed up seven days before the flood of 3147 BC. The directions, east and west, are likely to be correct as the initial stage of the seven days of blinding light. I have used this relationship of Saturn and Jupiter to plot the changes in 3147 BC.

[page 132] *"On the Andaman Islands the natives are afraid that a natural catastrophe will cause the world to turn over."*

[page 132] *"In Greenland also the Eskimos fear that the earth will turn over."*

The references are, again, to the event of 3147 BC.

[page 132] *"The Egyptian papyrus known as Papyrus Anastasi IV contains a complaint about gloom and the absence of solar light; it also says: 'The winter is come as (instead of) summer, the months are reversed and the hours disordered.'"*

This refers to a period of heavy clouds (or a shadow), lasting for years, which appeared after an interplanetary lightning strike traveled through an ocean to cause vast clouds in the atmosphere, or across forests to cause carbon dust to be lifted into the stratosphere. This would also happen when the Earth's polar axis took a long time to swing through a loop, which in effect would pass Earth through all the seasons in short order.

Gloom, of course, would make even a summer feel like winter. But the complaint is likely about the large climatic change after 1492 BC, and possibly a longer than usual gyroscopic reaction since Earth was impacted with a repulsive electric shock just below the equator in the eastern Pacific. The lever arm of the electric force was short, but it also hit closer to the Earth's center, causing a 30 percent increase in the orbit. This in itself changed climatic conditions worldwide. Grapes no longer grew in Scandinavia.

[page 132] *"The breath of heaven is out of harmony. ... The four seasons do not observe their proper times,' we read in the Texts of Taoism."*

The reference is to events of 685 BC. The Taoist doctrine is specifically a reaction to the changes of that year, and a suggested cause.

[page 315] *"In the tale of the southern Ute Indians, the cottontail is the animal that is connected with the disruption of the movement of the sun." ... "There is one instance more in the Indian story of the sun being impeded on its path and the ensuing world conflagration. Before the catastrophe, 'the sun used to go round close to the ground.' the purpose of the attack on the sun was to make 'the sun shine a little longer: the days were too short.' After the catastrophe 'the days became longer.'"*

This beautifully conflates two events close together in time, the Earth shock of 686 BC (involving Mercury), and the change in the axis in 685 BC. The longer days are in reference to the year after 685 BC, when the days would be longer, and the Sun would ride higher in the sky. Check this with the program [\[sun.html\]](#) for the latitude involved (about 30 degrees) and an axial inclination of 30 degrees. The Utes at that time lived much further north, where the difference between the travel of the Sun in summer would have been even more striking.

[page 317] *"Hindu astronomical tablets composed by the Brahmans in the first half of the millennium before the present era shows a uniform deviation from the expected position of the stars at the time the observations were made (the precession of the equinoxes being taken into*

consideration). Modern scholars wondered at this, in their opinion inexplicable error. In view of the geometrical methods employed by Hindu astronomy and its detailed method of calculation, a mistake in observation equal to even a fraction of a degree would be difficult to account for. In Jaiminiya-Upanisad-Brahmana it is written that the center of the sky, or the point around which the firmament revolves, is the Great Bear."

There are two ideas expressed here. That the axis of rotation of Earth was in the Great Bear before 685 BC, is entirely correct. The second piece of information, about tablet which "shows a uniform deviation from the expected position of the stars," is also correct. These are known as the *Panchasiddhantika* tables recorded before 685 BC but not published until AD 600. They were saved for us despite the vagaries of time, when all its companion observations were probably discarded 1000 years earlier.

[page 318] *"We possess the Chinese records of the longest and shortest shadows at noontime. These records are attributed to -1100. 'But the shortest and longest shadows recorded do not really represent the true lengths at present.' The old Chinese charts record the longest day with a duration which does not represent the various geographical latitudes of their observatories,' and therefore the figures are supposed to have been those of Babylonia [at 32.55 degrees latitude], borrowed by ancient Chinese, a rather unusual conjecture."*

Again, probably entirely correct for the era before 685 BC. (These certainly were not "borrowed" records from Babylonia.)

Considering that throughout most of antiquity the Earth was held to be shaped like a pancake, it is inconceivable how statements about this pancake get transformed into a sphere by modern translators. I would suggest a wide range of misreadings, based on our preconceptions of the Earth as a globe.

Some of the above material does not deal with the Earth turning over, but has reference to the change in the inclination of the Earth's axis in 685 BC, something Velikovsky and most other investigators were not at all aware of.

Velikovsky's Moving Pole

Because the recent glaciations have been centered at odd locations away from the North Pole, a number of people have concluded that the North Pole shifted

and the crust of the Earth followed -- sliding over the core to new locations. Velikovsky first invoked this idea in *Worlds in Collision*, and a number of writers of alternative cosmology tracts have followed suit. I have shown that glaciation had nothing to do with the North Pole. However, let me discuss these notions anyway. The following dismisses the concept of any permanent relocation of the Earth's spin axis with respect to the landmasses.

Two episodes of "pole shifting" were suggested by Immanuel Velikovsky. One instance, which concerns suspected events of circa 1500 BC, I disagree with and will discuss directly below. A second instance centers on the 8th century BC, which I will expand upon further below.

Velikovsky's suggestion in *Worlds in Collision* is that the Earth may have flipped over in 1500 BC, in addition to having the pole relocated by some 20 degrees. In support of this, Velikovsky supplies data for two changes of latitude for locations in the Middle East. The data, however, are from after 747 BC. I will address the changes in latitude below.

Data from 747 BC

Velikovsky's attempts to suggest that the Earth might have turned over are first of all based on Herodotus's information from the priests of Egypt, "Four times the Sun has set where it now rises." -- in effect that the path of the Sun had changed. The ancients could probably figure out that these represented two short-term changes in the path of the Sun, not a permanent condition. This happened in 747 BC and in 686 BC, accompanied by an Earth shock. Even so, if the Earth turned upside down, the Sun would still rise in the east, and would not "rise where it now sets." Spin does not stop. Perhaps one of these references is to the 40 days in 685 BC. [\[note 1\]](#)

The recollection of the priests was likely from a few hundred years earlier, not from three thousand years earlier. The more likely explanation, then, for this statement by the priests of Sais is that it reflects how the Sun, after rising, reversed direction and set where it had risen, to rise again from the same compass point shortly afterwards. That happened twice during the 8th and 7th centuries BC, and something similar may have also been recalled from 1492 and 1440 BC, although doubtful. In that it might have taken a day or even a few days, it would have been frightening. Herodotus writes this paragraph directly after a discussion of the demise of Sennacherib's army in 686 BC -- the year of the second Earth shock in the 8th and 7th centuries BC.

The *Iliad* and the *Odyssey* both record a Goddess holding back the sun at dawn or sunset for some hours only. Two Chinese records for the events of 686 BC state, "at night the stars fell like rain," which can be understood as an axial correction of short duration induced by a gyroscopic reaction.

Velikovsky also suggested that after the events of the 8th and 7th centuries BC the axis of the Earth no longer pointed in the same direction in space. That is correct, but was not the result of a close call by a planet. He cites the number of Greek and Roman writers who maintain that the center of the sky was previously located in "the wain" -- the constellation Ursa Major. Along with other sources, these all point to a change in the era of the 7th century BC. This specific change (in 685 BC) is dealt with in the chapter "The Tablets of Ammizaduga."

Other specific evidence offered by Velikovsky reduces the possible changes of the location of the geographical North Pole quite a bit. He cites evidence that Babylon moved 2.5 degrees south. Earlier records, before the 7th century BC, show Babylon located at 34.95 degrees. Today, and since most of the seventh century BC, it is located at 32.55 degrees latitude. I have discussed this in the chapter "Hezekiah and Babylon." It resulted from the change in the inclination of the Earth's axis in 685 BC. The invalid latitude was based on erroneous data for the length of the day -- in fact, the only error that could have been made. Babylon never moved. [\[note 2\]](#)

The second suggestion for a geographical relocation of the North Pole is from the curious prediction by Isaiah that some 10 measures of a shadow gnomon would be returned as a sign from God that king Hezekiah would live another 15 years. Because the gnomon had been built under a previous king, the Bible reads, *"I will bring again the shadow of the degrees, which is gone down in the sun-dial of Ahaz, ten degrees backward,"* it has been assumed that the "degrees" which disappeared, did so at an earlier time, under the former king, Ahaz. This is an unwarranted addition to the facts as presented in the Bible passage.

The meaning of the passage changes if it is understood that the "lost degrees" were returned in the very same year that they were lost. Again we are dealing, in simple terms, with the change in the inclination of the Earth's axis in 685 BC, which moved the equinoxes forward by 15 days. Isaiah recognized this in the fall of 685 BC, when the Sun stood lower in the sky on the expected day of the equinox, but assumed the correct angle 15 days later. God's promise to return the "shadow of the degrees" was accomplished 15 days after the expected spring

equinox, on March 21. I have detailed this also in the chapter "Hezekiah and Babylon."

Lastly, Velikovsky mentions Ptolemy's star chart of the second century AD, which leaves off a number of stars seen at the north horizon, and adds other stars in the south, different from what stars are visible from Alexandria today. This suggests that Alexandria changed location with respect to the North Pole, perhaps after the time of Ptolemy -- the second century AD. We do not have a single record of this. The "additional stars" of the south skies include only a few well-known stars. If used for navigation, additional southern stars would have been mostly useless to Mediterranean navigators. The Southern Cross could be seen at the latitude of Baghdad until circa AD 700, after which it started to slip below the southern horizon. Far northern stars would not be needed. I have detailed the use of stars in navigation in "Olmec Alignments."

The implications we are asked to reach by Velikovsky do not hold up against the known fact that the star chart of Ptolemy -- which remained in use in Europe for over a thousand years -- was based on older sources, most likely Chaldean (Babylonian) records which were turned over to Alexander in 331 BC in Babylon. (These records supposedly dated to 2349 BC.) Ptolemy himself attributes Hipparchus (146 to 127 BC) as his source. Hipparchus made his observations in Asia Minor, north of Alexandria, and also would have constructed the chart for navigation. Star charts were certainly needed after 685 BC, when Sirius no longer traveled just below the equatorial.

These data points are either disproven or completely inconclusive. I do not think the Earth turned over in the 8th century BC as either claimed or insinuated by Velikovsky, although certainly the axis of rotation shifted permanently to point to a different location in space, but not until after 685 BC, and for completely different reasons.

Earth as a Gyroscope

The Earth is a gyroscope, and reacts to outside forces as a gyroscope. If an external torque is momentarily applied to the Earth as a force offset from the center, in effect tipping the rotational axis, the Earth will produce a reaction torque which will sweep the pole through a circle to correct the imbalance and bring the pole back to its previous location. Such a reaction does not disrupt the normal rotation (spin). To stop the Earth's spin would take an absolutely enormous amount of energy. Spin simply does not stop.

Let me point out that the Earth is not a toy top or gyroscope set on a table, and does not react the same way to an impulse. There is absolutely no comparison between a toy gyroscope and a sphere spinning unsupported in space.

A top is subject to a normal force directed up from the bottom, and the force of gravity along the same axis. As you nudge the top, the force acting through its center of gravity is offset from the point of contact at the bottom. This constitutes a couple (a torque) acting permanently around the horizontal center of the top. The reaction torque resulting from this will set the top into precession. And it will be permanent. Nudge it more and it falls over, but since it is spinning, it will turn upside down instead. The top will do this when the force of sliding friction at the point of contact has been overcome. Sliding friction is only ten percent or so of the weight of the top.

You can play all you want, but until you remove the top away from gravity, and off the table, it will not act like Earth under the influence of an external impulse. It would be better to make a comparison to a gyrocompass, which is a gyroscope gimbaled on three axes. It will remain unperturbed when any of the axes are moved.

Data from 1500 BC

Thus the reaction to an external force, as from the sudden repulsive electrical field of another planet, at a distance of maybe millions of miles (see Appendix B, "The Celestial Mechanics"), would be a sweep of the pole through the sky which will make it look as if the Sun is traveling in unexpected ways. The disturbed path of the Sun in 1492 BC was noted in statements from the Mediterranean region that darkness extended over three days, from China that the Sun did not set for three days, and from Mesoamerica that the Sun just showed above the horizon for days on end. Velikovsky suggests that these recollections apply to 1500 BC, and I might agree, for certainly the Earth's orbit increased dramatically at that time.

The Midrashim commentary on Exodus suggests that in 1492 BC the sweep of the pole, "when the stars stopped moving," took a little over a year rather than three days. But it is not certain if the stars were seen at all, and certainly the stars would not relocate, even with an increase in the Earth's orbit. The Egyptian *Ipuwer Papyrus*, apparently written a few months after the initial disruption of 1492 BC, makes no claims for how long a sweep of the pole might have taken, but notes that the seasons were out of order -- which means that the change was

noticed within 3 to 6 months. It is also likely that the "change in the seasons" in 1492 was entirely due to the sudden cloud cover which lasted 20 years.

The repulsive forces which hit the Earth in 1492 BC were experienced in the eastern Pacific, and were followed almost at once by an attractive force which lifted the ocean into the skies. There are no islands left in the eastern Pacific below the equator and west of South America. The population of other islands, as far as Asia were entirely wiped out, leaving only their petroglyphs from 8347 BC or earlier.

I have localized the Earth shock of 1492 BC in the chapter "Moses," and explain the planetary reaction to an external torque in Appendix B, "The Celestial Mechanics." Going by information which can be gleaned from Velikovsky's *Worlds in Collision*, in 1492 BC, before making contact with Venus, it was spring. This is important to know, since it bears on the frozen mammoths, discussed below. Velikovsky claims the 14th of Aviv (equivalent to Nisan, that is, March/ April) as the day of the Earth shock. (Olmec site alignments point to a Gregorian equivalent day of April 19th.)

The sweep of the Earth's axis in 1492 BC followed on a massive earth-shock -- experienced worldwide. This devastating shock was the "event of Exodus," not the parting of the Red Sea waters. In reality, the movement of the Earth due to a gyroscopic reaction would not be as violent as is often suggested. The tsunamis and hurricanes would be due only to the initial reaction to the electrical repulsive force. Earthquakes would be experienced of course. [\[note 3\]](#)

Gyroscopic reactions are relatively gentle, so that even an inversion would not be noticed by humans, and no landmasses would be subjected to earthquakes or even tremors except in relation to the initial external impulse force, the Earth shock.

It is possible that the seasons being out of order might have been due to an actual inversion of the Earth. But the continued gyroscopic reaction would tend to bring the Earth back to its original (upright) position, and rather quicker than the Midrashim commentary that "the stars only stopped moving after a year." It is very conceivable that it would take a long time to move the earth upright again. And there is perhaps no guarantee that the Earth returned to its original inclination. The change to a 30 degree inclination of the rotational axis of the Earth dates from this event, and possibly much of the commentary from antiquity is based on this.

The repulsive electrical shock struck in the Central Pacific south of the equator. The external torque thus tilted the Earth's northern hemisphere toward the Sun, in effect moving the northern hemisphere into a summer season. Thus summer, not winter, followed spring, but it only lasted some hours or days.

Over the next few hours or days the gyroscopic reaction of the Earth would have caused the spin axis to swing through a loop (in a clockwise direction as seen from above Earth). This would have initially tilted the northern hemisphere away from the Sun, a winter condition, and moved the west faster to the east (at mid-latitudes).

The gyroscopic reaction might have taken a very long time. Or, more likely, the perceived winter weather might have followed from the water vapor put into the atmosphere as the initial slam, and followed by a lightning strike from Venus which traveled through the Pacific, the Indian Ocean, and into the Mediterranean. The tilt of the Earth was minor, but the impact force was considerable. This was the largest displacement encountered by Earth since 3147 BC.

The change in the radius of the orbit was from 74.1 million miles to 92.1 million miles (119 million to 148 million km). With that change in the orbit the seasons would seem to have changed, for Earth was now 25 percent further from the Sun. Hot summers never returned.

Flipping the Pole in 1500 BC

If the Earth's spin axis swings through an arc, the crust is just along for the ride, but is impeded by its momentum from rapidly changing direction. The lithosphere would continuously attempt to change direction, following the changing direction of the axis, perhaps sliding over the substrate of magma.

The crust might not come to rest in the same place relative to the Earth's axis from which it started. This would result in a minor relocation of the geographic location of the North Pole, and we have to allow that this might have happened in 2349 BC, in 1492 BC, and possibly in the 8th century BC. The crustal stresses would also take a long time to come to rest, producing earthquakes for hundreds of years.

Or so it is assumed. The actual movement of the crust might be very little, but even small displacements could cause devastating earthquakes. The gyroscopic

reaction torque is exactly what is often placed as the blame: the conversion of momentum from one form to another. But as C. S. Sherrerd, in "Gyroscopic Precession and Celestial Axis Displacement," in *Pensee Journal* (1973), wrote:

"These could occur without large angular decelerating and accelerating forces and without major tectonic disruptions, by the phenomenon of gyroscopic precession. Since gyroscopic precession involves a temporary transfer of angular momentum from spin to precession, when beginning and terminating it moderately affects the rate of rotation of a spinning object and introduces small horizontal forces on points on its surface; but it significantly shifts the absolute orientation of the spin axis in space as long as the precession continues in effect."

The precession, the circular swing of the axis of rotation, will continue until the axis again points to where among the stars it originally pointed, or somewhere near. A large permanent deflection of the pole -- such as turning the world upside down -- is extremely unlikely, for the amount of energy required to do so is enormous. But the reaction torque could move the rotational axis of the earth in a circle at or below an equatorial level. But still the Earth would upright itself.

The Earth did not flip over in 1492 but the axis certainly moved through a loop. The data is very sparse. We have only some descriptions which could be interpreted in differing ways, and one mention in commentaries on Genesis, and could, at any rate, be applied to other repulsive electrical field impulses which Earth has experienced.

Velikovsky attempts to build on the contradictory evidence of the 7th and 8th centuries BC to suggest a 20-degree shift of the North Pole in 1500 BC. Much of his argument is by innuendo, letting the data from the 8th century BC set a tone for an argument about the 16th century BC. But let me proceed to explore his argument anyway.

He bases the argument for a large shift in the location of the Earth's North Pole in 1500 BC on three items. (1) The fact that northern Siberia has never been glaciated, yet today the region is located within the Arctic Circle and is very cold. (2) The fact that the center of glaciation (actually one of the more recent centers) was located approximately 20 degrees south of the North Pole in an area west of Greenland, which (coincidentally) is almost the current location of the magnetic pole. (3) The fact that large herds of mammoths apparently died

very suddenly in Siberia around 1500 BC. I have already addressed two of these issues, but will explore them again briefly. The third will become obvious.

Lack of Glaciation in Siberia

I have suggested that the glaciation had nothing to do with Polar snowfall "extended over millions of years," but was the result of the sudden cold rains and snowfalls surrounding the strike point of the plasma arc connecting Earth and Saturn. Have any catastrophists ever recognized the obvious?

Between 8347 BC and 3147 BC the arc struck repeatedly in regions well away from the North Pole -- off the coast of Norway, east of Greenland, in Hudson Bay, and southeast of Greenland. [\[note 4\]](#)

The surrounding ring of falling snow had nothing to do with the North Pole. It had to do with the north magnetic pole -- which does not coincide with the geographical North Pole. A compass needle will point to the "geomagnetic poles." This is today located at 80 degrees north (AD 2010), 10 degrees south of the North Pole) and 110 degrees west, a location off the west coast of Greenland. The geomagnetic pole is a location influenced by magnetic anomalies within the Earth. In 1850 it was located at 70 degrees north (20 degrees south of the North Pole), 100 degrees west. In the Middle Ages of Europe it was located much further north, and had been moving south for centuries.

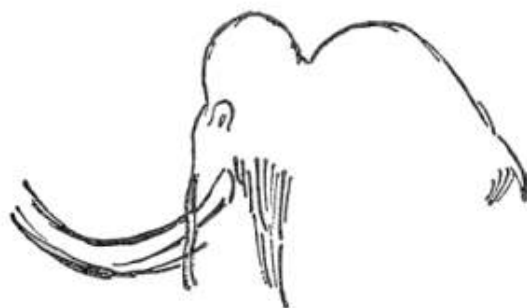
The actual location where compass needles would point straight down is at 85 degrees north and 133 degrees west in AD 2010. This would be the location of a plasma contact, if we were to have a plasma stream contact today.

The north magnetic pole moves in spirals on a daily basis, moves in larger circles over longer time periods, and since the 16th century has moved southwest, from a location near Spitsbergen east of Greenland (in AD 1590), through the Atlantic, and across Greenland. It is currently moving rapidly north toward the geographic North Pole.

We can draw a 30-degree circle around these points. It will include Greenland, except for the extreme northern part, and at various times also include Northwestern Europe, Canada, and parts of the USA (but not northern Alaska), but Siberia will never fall within the 30-degree radius circle of glaciation.

Frozen Mammoths in 1500 BC

I have also suggested that the Earth changed orbits a number of times since 3147 BC, moving from an orbit much closer to the Sun to our present location thirty percent further away. And I have noted that the largest change in the series of four orbital relocations occurred in 1492 BC.



[Image: A mammoth carving from the wall of the Cave of Font de Gaume, Périgord region, France.]

So here is the "*Tale of the Frozen Mammoths*". It was Spring of 1492 BC (as I mentioned earlier), and the mammoth herds, having overwintered further south in Central Asia, were happily grazing above the arctic circle in Siberia, just as humans had camped and hunted in the upper regions of Siberia since 30,000 BC, when suddenly the weather changed. The Earth's axis swung into a loop and Earth started to move further away from the Sun. The first manifestation moved spring to summer directly, followed at once by winter. It was an arctic winter which suddenly descended on mammoths who normally migrated south in the fall. Although the light returned soon, with this came worldwide hurricanes, followed by an Arctic Ocean tsunami. The mammoths were swept away by winds and flood waters -- or so it is imagined. [\[note 5\]](#)

When the Earth completed its gyroscopic reaction, and summer of the following year came, it never got as warm again as it had in the past, for the Earth had moved much further away from the Sun. The Arctic ground turned to permafrost, a condition which prevails to today. The mammoths lost.

Velikovsky would suggest that the mammoths died because Siberia suddenly moved north into the Arctic region in 1500 BC -- rather than that the climate changed radically. He holds that some location west of Greenland was the *geographic* North Pole, and as the pole moved from Hudson Bay to its present location in 1500 BC, Siberia would have moved north into the Arctic region, just like Hudson Bay would have moved south.

By that scenario the temples and monuments in Egypt and Mesopotamia which were built before 1500 BC (and after 2600 BC) would face northwest, for that would have been the direction of "north." They do not. Only the Western European megalithic constructions before and shortly after 3100 BC, and Egyptian mastabas and the pyramids until the Meidum pyramid (2600 BC), face northwest -- towards Greenland. In Egypt the change in the orientation of buildings happens after 2600 BC, not after 1500 BC. Since 2600 BC most temples and public buildings are consistently oriented with an axis pointing north or near-north -- the same "north" we experience today.

I would thus reject the suggestion that the Earth's axis shifted 20 degrees in 1500 BC. I am also not convinced that the Earth turned over in 1500 BC.

Other Polar Relocations

The writers Charles Hapgood, C. Rand, Rose Flem-Ath, and Colin Wilson have made much of Antarctica and relocating poles -- with books which are at times listed as "pseudoscientific" in reviews. Hapgood writes of the Earth turning over and ancient maps identifying Antarctica, while Rand and Flem-Ath populate Antarctica with sailors who bring the knowledge of geography to the peoples of the world. [\[note 6\]](#)

I don't take much stock in these theories, although I have fewer problems with Hapgood's map book, especially since his maps show coastal features, without mapping the interior of Antarctica. Rather than being very ancient maps, these coastlines were probably charted by the Chinese naval expeditions of the 15th century, during a period of warm climate everywhere, from AD 800 to AD 1400. [\[note 7\]](#)

I don't buy any of the information in the Rand and Flem-Ath books. The authors hold to the postulate of the catastrophic sinking of Atlantis in 9600 BC, as told by Plato (but not by a single other source in antiquity), and they identify Antarctica as Atlantis (which has not dipped below the waters of an ocean). But of some interest are the identifications of three locations of the "North Pole" based on estimating the center of various previous glaciations. These are placed in the Atlantic off the coast of northern Norway, at the southern tip of Greenland, and at the western edge Hudson Bay. They also hold that the northern glaciations each form a circle of some 24 degrees surrounding these three locations. [\[note 8\]](#)

At this point, let me summarize the above information: I do not believe that the Earth ever turned over and remained in that position, or that the North Pole relocated by any appreciable amount. Other researchers have proposed, not only that the Earth turned over, but that it remained in that position, until a later gravitational "external torque" of a Mars fly-by, as Martin Sieff notes in "Assyria and the End of the Late Bronze Age" (*SIS Workshop* 1981), in discussing M. G. Reade, "The Ramesside Star Tables" (*SIS Review* 1979).

Endnotes

Note 1 --

Peter Warlow "Geomagnetic reversals?" in *J. Physics*, October 1978. The article notes that spin will not likely stop, however the point of the article is to suggest "pole flipping" while also inducing a transfer of east and west. A summary by others:

"Employing a wide span of data from complex top theory to ancient legend, P. Warlow suggests that the earth has undergone many violent catastrophes, some of them within the time of man. Flood legends, geomagnetic reversals, tektites, paleoclimatology, salinity crises, and other familiar standbys of the catastrophists force P. Warlow to examine the stability of the earth in the presence of astronomical collisions and near-collisions."

"He shows that the earth rotates slowly and that, even with the stabilizing equatorial bulge, our planet is rather sensitive to outside forces. It is, he says, like ... an 8,000-mile-diameter top that turns over repeatedly in response to external influences. Did not the ancient Egyptians write that the sun once rose in the west?"

This is followed in 1981 by: "Fatal Flaw in Pole-Flipping Theory," *New Scientist*, 92:433, 1981:

"V. Slabinski of the Communications Satellite Corporation claims that there are three separate errors in P. Warlow's theoretical analysis of terrestrial pole-flipping due to the gravitational torques created by a passing celestial body. With these errors corrected, the earth is 200 times less sensitive to pole-flipping. Slabinski does not believe that any known solar system object could turn the earth end-for-end if it passed by. This item proclaims that the

discovery of Warlow's errors is a serious blow to Velikovskian catastrophism."

In 2002 William Corliss (of Science Frontiers, Internet) noted: "Over a decade has passed and no rebuttal by Warlow has been seen. We must, therefore, consider his hypothesis highly questionable." In 1982, however, Warlow had countered with a book *Reversing Earth*, noted as "a major scientific contribution" by one reviewer. Warlow has a PhD in physics.

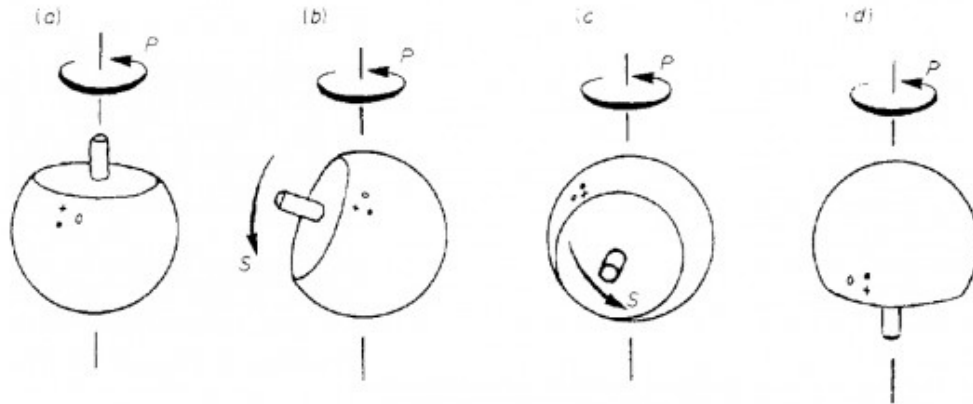
Leroy Ellenberger made the point more clearly when he wrote,

"Warlow's inversion would actually require an intruder 31% more massive than Jupiter, which is patently ludicrous. Adjusting the calculation for a more realistic, and shorter, transit time [Warlow used the application of an exterior torque lasting 24 hours] raises the requirement to a body as massive as 62 Suns!"

-- LE, *Skeptical Inquirer* (1986) with later revisions

Was there anyone who could suggest that the only reason the Tippe-Top (the toy which was used to demonstrate the flipping over of Earth) exhibits its east-west interchange is because the bottom surface would scrape against a flat surface which supported the top while the spin handle (representing the North Pole) dips down to invert the Earth? There would be a spin axis at the top of the wobbling top throughout the inversion, although this is actually the gyroscopic reaction torque.

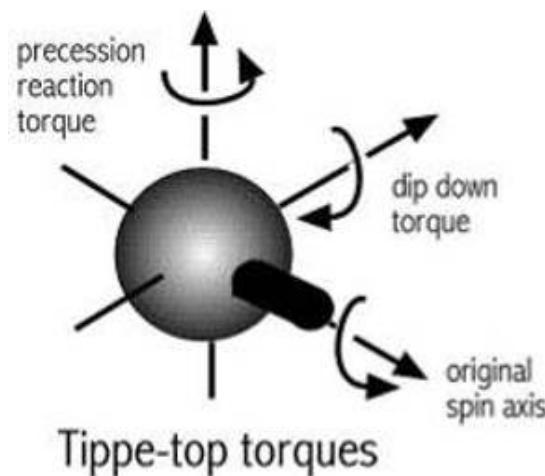
Warlow's suggestion of a differential torque applied only to the Earth's equatorial bulge is hardly legitimate mechanics, and only worsens the model. The whole of this Tippe-Top notion is a bad analogy buffered with illegitimate math. It is almost beyond comprehension that since 1978 thousands of academics -- economists, classicists, writers, poets -- have accepted the Tippe-Top analogy without as much as a single thought to the physics or mechanics involved. The debunkers have the same nearsightedness, offering solutions that are simply not required.



[Image: The inversion of a Tippetop as understood by P. Warlow.
After Peter Warlow.]

What Warlow understood in looking at the spinning Tippetop is that the original vertical spin axis remained in place at the top of the Tippetop, even as the original spin handle dipped down and started to precess. But this is not so. It is indeed difficult to tell what is happening with the spinning top.

The original spin remains at the spin handle, even as this dips down and starts to precess. When the spin handle starts to lean over a gyroscopic reaction torque is added, exhibited as a rotation in the same direction as the original spin. The axis of this is located at the top of the Tippetop by the time the spin handle is horizontal.



[Image: Tippetop torques on inversion.
Graphics by J. Cook.]

The gyroscopic reaction torque results from the couple which forces the top's spin handle down. This couple (torque) is produced by the down-directed force

of gravity and the up-directed normal force at the base of the Tippy-Top where it is in contact with its supporting surface. As the Tippe-Top inverts completely, this couple disappears, and the spin of the gyroscopic reaction torque has substituted for the original spin -- and in the opposite direction.

The Tippy-Top will indeed reverse direction. The Earth would too, if it could be placed on the surface of a table.

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Note 2 --

Velikovsky supplies some additional data on water clocks and shadow clocks in Egypt built before 750 BC which no longer record the correct daylight hours at solstice. Since shadow clocks can easily keep time to within a few seconds, and have done so since antiquity, this is a notable anomaly. The data he presents, however, is entirely inconclusive, or missing.

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Note 3 --

"Hurricanes of 250 miles an hour [400 km per hr] strip a land and all man-made works down to bedrock. Great tsunamis, such as are caused by huge earthquakes and meteoritic passthroughs of the atmosphere, do the same." -- de Grazia, The Burning of Troy (1984)

De Grazia is addressing the effects of a close passage of Mars.

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Note 4 --

As noted in another chapter, the orientation of European megalithic structures, the orientation of the first Egyptian mastabas and pyramids, and the direction of the World Mountain in Chinese mythology all intersect at the Atlantic south of Greenland. This was the location of the last strike point of the Saturnian arc (I think), and presumably the north magnetic pole at that time, in the period before 3147 BC. But 4000 years later the magnetic pole was located much further north and east, at Spitsbergen far east of Greenland, but today it is west of Greenland, thus having completed another circuit by moving around Greenland.

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Note 5 --

There are two-hundred-foot-high piles of mammoth bones and tusks (and elephants and other Asiatic grazing animals) on the shores of the New Siberian Islands, swept to land (it is assumed) by Arctic Ocean storms. Most of the ivory of antiquity came from this location.

The whole question of why the mammoth died out in Siberia, Asia, Europe, and the Americas has been in contention for a hundred years. Carbon-14 dates are often brought forward as evidence of an antiquity stretching to 30,000 BC, but the same carcasses will have stomach contents dated to 1500 BC. See Charles Ginenthal *Extinction of the Mammoth* (1997).

What is clear is that the mammoth (and many other diverse species) lived in:

"... a grassland environment with a long growing season, mild winters, very little permafrost, and a wide diversity of plants -- quite different from the climate in the region today."

-- Michael J. Oard, in "The extinction of the woolly mammoth: was it a quick freeze?" <http://AnswersinGenesis.org> (pdf, 1997)

Mammoths not only ate grasses, but whole bushes and small shrubs. Oard also notes two interesting facts. First, many mammoth carcasses show signs of asphyxiation, and, second, most remains are found in windblown deposits (at times in a standing position). They did not slip into bogs, as some people maintain.

The mass extinction of the mammoth, especially in Siberia, has been taken up by Creationists (including Michael Oard, above) as a *cause célèbre*, and is as a result mired in pseudo-science, with similarly muddled objections from Gradualists.

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Note 6 --

A few reviews posted at Amazon.com:

Charles Hapgood *Maps of the Ancient Sea Kings* (pb 1997):

Eric Vertommen (Brussels, Belgium) *"Charles Hapgood has made an excellent job to point out some strange features on Ancient maps. Comparing a set of maps made from Ptolemaea (166 AD) to the Middle Ages*

and the first global maps made by Piri Re'is (An Ottoman admiral), Hadji Ahmed, Orontaeus Finaeus, and Mercator, all editing their maps between 1513 and 1560, he (and the reader) notice that Antarctic continent figures almost accurately on all of them."

C. Rand and Colin Wilson *The Atlantis Blueprint* (2002):

From Publishers Weekly: *"In this pseudoscientific account, Flem-Ath, a Canadian librarian, and Wilson, bestselling author and New Age jack-of-all-trades, propose a single, geo-historical theory that links the Egyptian, Chinese and South American pyramids and other sacred sites. According to this argument, these civilizations received templates from Atlantis that contained crucial geodesic, geological and geometric information. Furthermore, Atlantean mariners, based in Antarctica, sailed the globe over 100,000 years ago and established more than 60 sacred sites around the world, such as Byblos and Jericho, to preserve the sophisticated wisdom of their culture. (Copyright 2001 Cahners Business Information, Inc.)*

C. Rand and Rose Flem-Ath *When the Sky Fell, in Search of Atlantis* (pb 1997):

"The mystery of Atlantis, the legendary advanced civilization described in ancient texts, has been solved at last. Scientific evidence, exciting new research, and the breakthrough discovery of an amazing Egyptian map prove without a doubt that this lost continent did exist ... and reveal where its ruins can be found."

See also Charles Hapgood *The Path of the Pole* (1999). I fail to see what "geodesic information" or "sophisticated wisdom" would have been so crucial. Antarctica has been glaciated for over 30 million years. A number of people have completely dismissed the Piri Re'is map. See, for example, the comments of geologist Steven Dutch, "The Piri Reis Map" at [\[http://www.uwgb.edu/DutchS/PSEUDOSC/PiriRies.HTM\]](http://www.uwgb.edu/DutchS/PSEUDOSC/PiriRies.HTM).
[\[return to text\]](#)

Note 7 --

This is the point of research by Gavin Menzies, in *1421: The Year China Discovered America* (2002). Menzies includes the circumnavigation of Greenland in addition to Antarctic explorations. The ice-free coasts did not last, for by the time the Europeans started worldwide explorations the Atlantic had

become very stormy. The last climatic changes are as follows: circa 500 AD: warm; circa 800 AD: cold; circa 1400: warm; circa 1700: cold.

Of course Menzies's maps are disputed, as is his whole thesis. But if we allow that climatic condition were not always as they are today, then the population of South America and South Africa by Cro-Magnon humans via Australia and the very productive fishing grounds of Antarctica becomes a real possibility, even if placed 60,000 years ago in time.

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Note 8 --

Rand and Flem-Ath place the center of the European glaciation at 73 degrees north and 170 degrees west, and give no dates; place the Wisconsin glaciation at 63 degrees north and 45 degrees east, starting at 2.5 million years ago and ending about 100,000 BC; and place the Illinoian glaciation at 60 degrees north and 97 degrees east (the east end of Hudson Bay), ending in Plato's date of 9600 BC. This last is far too late. The last ice age came to an end in 12,000 BC. I'm not at all in agreement on the locations either.

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Special thanks to S Borruso for the questions on gyroscopes.



Appendix F: The Narmer Palette.

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Contents of this appendix:

[\[The Palette of Narmer\]](#) [\[Endnotes\]](#)

The Palette of Narmer and the Predynastic Kings of Egypt

Predynastic Egypt includes the time from perhaps 5000 BC to about 3050 BC, or at least to before the first dynasties. Egypt has been better studied than other areas of the world because of our continued fascination with Egypt, but also because Egypt presents a long continuity of culture within a limited geography, and, by good fortune, a desert soil which preserves archaeological remains well.

I have stated that there was no civil leadership during the "Era of the Gods," something claimed by many archaeologists and based on the absence of graves endowed with surplus "grave goods." But this is not entirely certain, for archaeologists frequently date some elaborate graves to before 3147 BC, both in Mesopotamia and Egypt. These finds may suffer from difficulties in dating, but also cannot of necessity be ascribed to "kings" or "pharaohs."

Since the temple culture in Egypt, as elsewhere, certainly predates the end of the "Era of the Gods," there would have been priests and, as the temple culture expanded, assistants to priests and, as a result, a hierarchy. This might have been enough to honor those in charge upon their death, and might explain the companions which followed them to the grave. In actuality we know next to nothing of the circumstances for elaborate graves -- especially since all were robbed in antiquity. Archaeologists, however, have identified a series of "kings" who preceded the First Dynasty of Egypt. But let's first see what the Egyptians themselves say.

Manetho (300 BC) identifies the first king of the first Dynasty as "Menes" in his list of kings of Egypt. Menes, says Manetho, unified Egypt, that is, he forged it into a single state stretching from Nubia to the Mediterranean. The unification

has always been held as the unification of Upper Egypt, south of the Nile delta, and Lower Egypt, the delta region. Herodotus, 100 years earlier, wrote the same, based on information gathered from the priests of Sais. Actually, in more correct terms, Menes unified the upper and lower land -- heaven and Earth.

What is important in the parallel information supplied by Herodotus and Manetho, is that there clearly were temple records dating back nearly 3000 years to the First Dynasty. These seemed to have been canonical, for the records change almost not at all over this long period of time. The first instances of a consecutive listing of kings are one or two lists of the serekhs of the kings of the First Dynasty, found in First Dynasty graves (3050 to 2857 BC) at Abydos.

A second instance is 300 years later. It is a carved basalt block from the Fifth Dynasty of the Old Kingdom (circa 2550 BC), the Palermo Stone: unfortunately shattered, badly worn, and reduced to a few fragments. The Palermo Stone lists the Gods, the "Followers of Horus," and presents a partial list of the pharaohs of the first five dynasties. For each of the pharaohs the Palermo Stone lists a catalog of important events, year by year, although most of these events are as mundane as the acquisition of lumber or honey, the dedication of a statue, or a national cattle census.

A last significant listing is a papyrus dating supposedly from 1200 BC, the *Turin Canon*, which also lists the Gods, some three groups of mythical spirits and kings (with "lifetimes" spanning many thousands of years), and then, in the same order, the pharaohs and their reign lengths, starting with Menes, who is listed twice in succession, once with the glyph for a God and the second time as a mere human. "Menes" means "who remains" or "endures" -- suggesting that Menes is to be identified with Jupiter. But there is more. [\[note 1\]](#)

The listed reign lengths of the *Turin Canon* are much longer than archaeological evidence indicates. Manetho may have had much more realistic reign lengths available to him, but he also lists the Gods and the demigods at exceptionally long lifetimes. There are additionally temple inscriptions of later dates which at least largely follow the same sequence.

Who came before Menes, is a series of persons or spirits, called the "Followers of Horus," and before that time lived the Gods. Nine of them, all easily identifiable both from ancient records (the Palermo Stone) and from much later records (like the *Turin Canon*). There are no records of kings before Menes of the first dynasty. There are, in fact, no records of Menes besides mention of being the first king.

The Palette of Narmer

Archaeologists have been concerned with the social and political history of Egypt, and have traced cultural development from 4500 BC. By 3100 or 3000 BC the culture of Egypt is uniform from Aswan to the delta. Unification of Egypt was claimed for Menes (circa 3050 BC), and obviously would have been an expansion of cultural or religious elements of Upper Egypt into the delta.

But at the time of Menes the delta was seriously flooded from the higher sea levels after the flood of 3147 BC. Herodotus claimed, on the basis of information from the Egyptian priests, that the delta was indeed flooded, and that land reclamation was attributed to Menes. There was thus hardly any need for Upper Egypt to conquer Lower Egypt. But Herodotus has been ignored on the matter of a flooded delta. Who would believe in a world flood anyway?

Since there is a theme of "unification" repeated over and over again in Egyptian history, it suggested (to archaeologists) that the conquest of the delta by forces from Upper Egypt must have been a monumental event. We know absolutely nothing about Menes, other than an indication that his name means "he who remains." The name of the founding king of the first dynasty is also missing from the Palermo Stone, and is recorded differently from "Menes" in other records. Since there is also no evidence of battles or conquests during this time, that is, at the time of the beginning of the First Dynasty, archaeologists were determined to find this event at an earlier time.

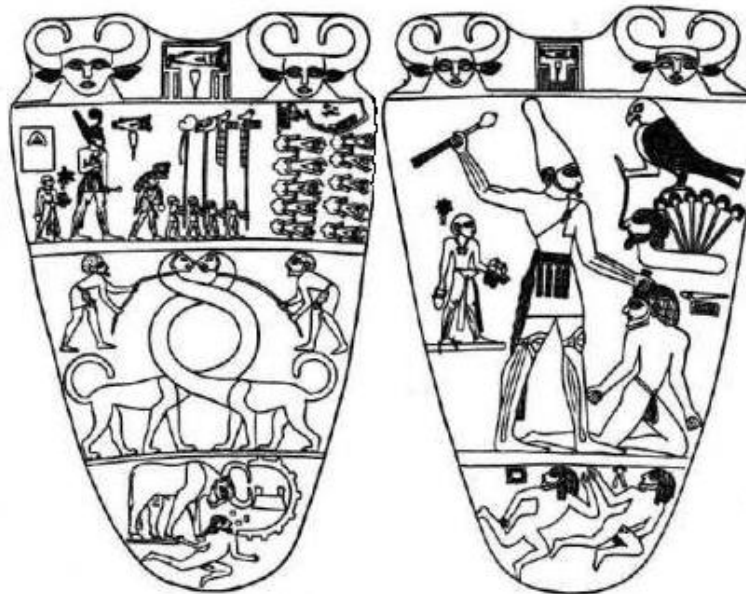


Image: The Palette of Narmer, circa 3050 BC; left: front face. After Francesco Raffaele.

The outstanding example for a suggestion of an early unification of Egypt is attributed to a predynastic king named "Narmer" who has even been equated with Manetho's first pharaoh, "Menes." The suggestion for a king named "Narmer" comes from the "Palette of Narmer" found buried below the floor of the temple at Heirakonpolis (Nekhen, the City of the Falcon), in Central Upper Egypt, and dated to 3000 or 3050 BC by inference from other known cosmetic palettes. [\[note 2\]](#)



Image: The Palette of Narmer, circa 3050 BC; detail of top register of front face. After Francesco Raffaele.

It has been suggested that this palette represents a victory commemoration for the unification of Upper and Lower Egypt. Narmer was thought to be Menes, who left no other record. Unification became such an important "theme" for all the later pharaohs, that archaeologists could not help but suggest that this must have happened in the pre-dynastic era, for there is no mention or evidence of warfare during the First Dynasty.

I think the Palette of Narmer depicts not a person, but most likely Jupiter -- he who remained -- shown in the last celestial battle. The dress and insignias, however, make him Horus of the Egyptians -- the planet that descended to Earth repeatedly in the previous 1000 years. The imagery dates from long before the breakup of the Polar Configuration, and it is used here perhaps because there was no available theology for the present condition, and the associated imagery

is missing also. This is a somewhat radical position to take for me, but it is demanded on the basis of the strength of all the prior text of this website. The destruction of the home of the gods had happened at a considerable distance.

I have looked at the progression of palettes from Naqada through pre-dynastic times. The questions of serpopards and giraffes and matched palm trees are adequately answered by the images in the sky at the north horizon during the period up to 3147 BC. (There is a Gebel Tarif knife handle, and some other predynastic knife handles, which show the "serpopards" as snakes instead.) But let me just introduce what is going on here.

First, though, I should make the point that Egyptian representational graphics are not narrative. They are situational, and we could presume that they are without reference of the passage of time or to causal connections. We, of course, demand a narrative in any collection of images. We make up sequences of actions even if none are intended. I have seen any number of serious attempts by academically accredited researchers at a sequential reading of the Narmer Palette, which involved switching registers and flipping from front to back to make sense of the imagery. But if there is an implied sequence meant for reading, it is as yet hidden from us.

... the front

The palette can be read, and probably in the following order: front face first, back next. The front face (called the obverse) is the side with the circular depression used for grinding cosmetic powders. I would suggest also that the individual registers need to be read from the bottom to the top, and each generally from the left to the right. Reading from left to right is based on other Egyptian inscriptions which are always meant to be read in the direction which the animals or the people of the glyphs face.

On the front face, from the bottom, we first see the Bull of Heaven smashing the walled City of the Gods. Jupiter was seen as the approach of a bull, with his upper horns above and his huge bulk below. The shock of the electric field forces between Jupiter and the Saturnian planets, once their plasmaspheres intersected, resulted in the dispersal of the planets traveling with Saturn. Earth was released from Saturn in the process. This released the standing ocean waters from the South Pole.

Egypt was largely unaffected by the flood of 3147 BC, so that, instead of seeing Noah's ship landed on a mountain, the Egyptians saw the crescent on top of a giant outpouring of plasma from the underside of Jupiter's coma as his horns. Jupiter would have been in the direction of the Sun; Earth was well below Saturn and Jupiter.

The bull is not a representation of the pharaoh; it is Jupiter, the "bull of heaven." The city with the broken walls is the original home of the gods which is Saturn where the satellites of Saturn are the gods. The dead person therefore is Saturn. We can be assured also that any naked persons (or gods) are dead.

There are hieroglyphic labels, but most cannot be read. They are too early in the developing Egyptian script, even if borrowed from Mesopotamia. Either way, most are unrecognized. What has been suggested in this case for the dead Saturn is a lable ("styw") translated to mean "Asiatics" or "Easterners." My presumed approach of Jupiter, headed for a plsmasphere interaction, would be seen from Earth as coming from the east.

In the next register are the serpopards (as they are known). This is an image of the plasma dome near Earth (the bulky bottom portion), with two polar plasma streams above. The plasma streams are in high level glow mode, which forces them to twist around each other. Archaeologists feel that the two human figures are looping the long necks of the serpopards. But it is much more likely that the serpopards are being separated in order to be removed. This could be an action image, but just as likely it represents the status over the last 1000 years.

In the top register, from left to right, are Horus followed by his sandal bearer son, and preceded by a priest and four standard bearers -- or so it is thought to be. They are about to view ten decapitated and castrated captives.

That is not his son, but Mercury. He carries two sandals, and a jar of oil (it is assumed). There is an insignia around his neck which is unreadable. Archaeologists think that it is replicated in the rectangular window behind him. (Not so on the reverse side.) Others claim this image is a boomerang (boomerangs occur worldwide). As a boomerang the glyph is read either as "guard" or "running forth" or, if I may add my two cents, as "returning." Mercury also has a six pointed star as a label. This is a Mesopotamian glyph which designates him as a god or royalty. With a bald head he would be a god.

Mercury is the falcon that flies overhead, seen simultaneously with Mars during this era. Mercury is a gigantic winged bird, not the seated falcon of much earlier

times, since Mercury had polar plumes, one pointing up (to the north) and one pointing south. Mercury would move from east to west accross the sky as the Earth rotated to the east.

Horus is shown with his nighttime crown, the insignia of Lower Egypt -- which is Earth, as apposed to heaven -- and which will become the crown representing Lower Egypt, that is, the delta. Part of the front of the palette seems to record the event of 3147 BC which happened in the north, but the parade of the top register has to be assigned to the view of the south.

The pharaoh's name is engraved directly in front of him as "catfish, chisel." The same insignia is also presented in the center at the top of both sides of the palette in a serekh.

The dress and paraphernalia of the king is Egyptian -- the fake beard, the bull's tail from his belt, the short kilt with the over-the-shoulder strap. The pharaoh carries a flail in his right hand, and a cudgel in the other. At a later time this will be exchanged for a curved staff. Perhaps at this time very little had been seen of polar plasma plumes, although the *Chilam Balam* give a time span of 18 months for the first polar plume. The polar plume is the model for the staff carried in death by the pharaohs, designating control over infinite time. The depiction of the regalia remains the same for the next three thousand years.

There are additional decidedly Mesopotamian elements, primarily in the hieroglyphs used to identify the figures, including the "serekh" sign used to indicate the name of the king, "catfish-drill," which has the sound of "Nar-Mer." The pronunciation of this rebus is distinctly Egyptian. But the remaining script is claimed by some to be from the syllabary of northern Mesopotamia or Anatolia, dated to the Jemdet Nasr period (3100 to 3000 BC). [\[note 3\]](#)

The sign of the "serekh" is the facade of a temple, enclosed in a rectangle, a symbol the Egyptians will retain, whereas it will be abandoned in Mesopotamia. The serehk is used at the top of both sides of the palette. The later Mesopotamian "temple" is a round-roofed thatched hut, still in use today in the region between the Euphrates and Tigris south of Baghdad. The Egyptians built with different materials, and their serehk symbol is a rectangular building with fluted walls.

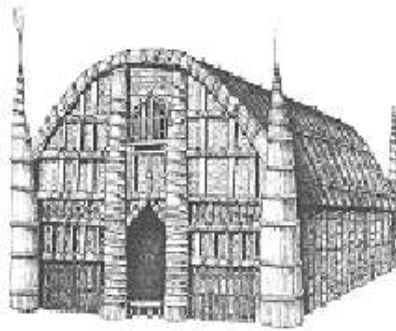


Image: Sumerian Temple Hut. After history-world.org.

In front of Horus is a wigged person with a smooth face. This is generally thought to represent a priest or another son of the pharaoh. A few researchers have overcome their biases and have suggested it is a woman. The question remains, What is she carrying? It looks like a bola.

The name glyph (a rope tie and a bread loaf) reads "t't" which much later came to mean vizier. This could represent Venus, which from the earliest times in the Eastern Mediterranean has been held to be female. Venus had escaped from the destruction by Jupiter.

The parade is led by four standard bearers, often suggested to represent defeated delta nomes, even if it remains that there are 16 others which are not shown. The raised standards are not defeated nomes, as suggested by some archaeologists, but represent the four cardinal directions. The standards are depicted again in other artifacts from this time, still four of them (one later monumental depiction uses five). But there are some 20 nomes in the delta region and another 20 in Upper Egypt. The standards are not conquered nomes.

The stomach depicts the south. It is an image of the southern plasmoid, as it also is the glyph for "king" in Mesopotamia.

North is depicted by the "dog" (actually a jackal) on a plow, where the plow is Ursa Minor. Before the center of rotation of the Earth changed location in the dome of the stars, Ursa Minor rotated around the pole of Ursa Major. This depiction will remain in use for the next 3000 years, as for example at the ceiling design of the temple at Denderah.

The hawks on bannered standards are the east and west direction, the locations between which the seated hawk "Horus" (as the Saturnian group of planets)

traveled for 4000 years. The same banners are depicted somewhat later in Mesopotamia, but with circles on top rather than falcons.

The ten dead men are next, arrayed with their heads between their legs. Above the dead men is a line of hieroglyphs, which reads from right to left (thus backwards). Louis A. Waddell reads this as "*Magan, dead men*" [or dead birds]. This makes little sense.

The alternative reading for the glyphs is, from right to left, "the bark of Horus," where a falcon is sitting on a harpoon above the ship, suggesting a reading of "only Horus." The ship has the usual covered hut, plus what looks like the head of a bull and some other object. In front of the ship is a swinging door and another Horus falcon, which could read as "the Horus gate."

It would seem obvious that these represent the "followers of Horus," appearing before (toward the west) Horus showed up in the night sky. The phrase "gate of Horus" may be the opening and closing of the gap in the Absu at the time of the equinoxes. It is from there, the further night sky that Horus appeared. This would have happened every year and a half. Interestingly, the archaeological date of 3050 BC is after my estimate of the first return of Mars in 3067 BC.

... the back

The reverse side has only two panels. The bottom register shows two dead men - - perhaps the Gods Saturn and Neptune. Saturn is easily identified by his name label: a city plan with crenellated walls. The other planet by association has to be Neptune. Its name hieroglyph looks like a rope knot.

The third planet of the 3147 BC confrontation would have been Uranus. He is shown in the second register, being brained by Horus wielding Venus as a club. Horus is here holding him by his long hair. This has happened thousands of years earlier. Horus wears the daytime crown of Upper Egypt (heaven), and, like on the obverse side, the kilt, bull's tail, and fake beard. He also wears an apron decorated with four bull's heads. (On the obverse he wears a net and a sack from the waist.)

Uranus is not shown with long hair as is typical of almost all the other "Smiting the Enemy" tableaux, throughout 3000 years of Egyptian history. The "smiting" image had been in use already (for example, as ivory grave goods labels) for 300 years before the assumed date (3050 BC) for the Narmer Palette. The image has

shown up also in the Levant and Anatolia. So perhaps the image is not strictly Egyptian, although it continues in use for three thousand more years.

The image of the pharaoh as Horus/Mars, with his mace and captive, represent a combination of elements originally assigned to Mars in its repeated descents to Earth from Saturn before 3147 BC. The Maya *Chilam Balam* describes this image item for item. The club is Venus with its trailing plasma connection to Saturn. The "enemy" held by the hair is Uranus -- grabbed either at the time of the dissolution of the polar configuration in 3147 BC, or at a much earlier time when Uranus sank from view above Saturn -- a couple of thousand years earlier. This image is related directly to a view of the north horizon.

Uranus is labeled with the hieroglyphs for harpoon and a lake. It is suggested by others that this represents the concept of "unique" or "the only one." This is taken by others to translate to "Angra Mainyu" (Malign Mind), which is a Zoroastrian construct (and thus two or three thousand years later), representing the evil aspect of a god -- the devil -- Ahriman in Persian.

Horus is followed by Mercury bearing his sandals, as on the obverse side, but without the "guard" boomerang symbol. Again, he is bald and shaven and accompanied with the 7-pointed star symbol of a deity (on the reverse the star is 6 pointed).

To the right of Horus, and facing him, is a large falcon seated with one leg on a set of six papyrus buds while in his other claw (hand) he holds a rope leading through the nose plenum of a human head. The head is attached to a shape which normally would designate a lake or body of water from which the above mentioned papyrus buds sprout. Others have seen this as a sign for captives taken in the swamps of the delta, but the really large swamp is the Duat in the south sky. It has also been suggested that each papyrus stem stands for 1000 prisoners.

These again are, I would surmise, the "Followers of Horus." I have covered the concepts of the Followers of Horus, and the Maruts, in detail in Chapter 18.

One last element is to address the bull-horned faces at the top corners of both sides of the palette. These bulls are thought to represent the goddess Bat, who represented the entire cosmos, and later shows up as Hathor with the same bovine ears, but without the horns -- except as part of her headdress.

... concepts

The palette represents the earlier Saturn (actually Horus, as shown by the Horus crown) wielding Venus as a club and about to bash Uranus who has been grabbed by his hair. It is used here to name the winner of the last battle, waged between Jupiter and Saturn. It does not depict the battle, for it is a static image from recent antiquity -- decades before 3050 BC. If a battle is suggested, it would be between Upper Earth and Lower Earth, a battle between Jupiter and the Titans, a battle waged before these planets reaching the asteroid belt. The two regions of Heaven (Upper Earth) and Earth (Lower Earth) were equated with Upper Egypt and Lower Egypt by later dynastic times, and, I suspect, certainly by the time of the third dynasty, after about 2686 BC.

But of course the palette is about Narmer the conquering Catfish Chisel, the Bull of Heaven, and represents Jupiter, although on both sides parading as Horus. This may have been the only allowed image available. It is strange also that the planets are depicted as persons.

I seriously doubt if the palette of Narmer has anything to do with local warfare. We think in terms of action and causal relationships. The meanings of Egyptian images are, I suspect, mostly beyond our ken. They are most likely totally religious. They are sacred depictions of beliefs of 5000 years ago, and incorporating beliefs dating back to the earliest encounters within memory with Saturn, probably at about 11,000 BC. Dead animals traveling through the skies date from 30,000 years ago.

At the time of the Narmer Palette and Menes (Jupiter), Egypt was already united culturally with the establishment of the city of Memphis at the neck of the Nile delta (attributed to Menes). The Upper Egyptian Horus became the name of the God who ruled Egypt, and the pharaohs became Horus. But Horus was Saturn originally, and Jupiter later. During the period of the Palette of Narmer, Horus was Mars.

Having a single king recognized as God himself, perhaps in his function as chief priest, or having someone assigned to play the role of God, must have solved a lot of administrative problems in the acquisition and distribution of temple products. After the time of Menes, the "Followers of Horus" are still mentioned on the Palermo Stone, and in a few instances as late as the 5th dynasty, 500 years later. But the "Followers of Horus" never enter funeral ceremonies. I have

suggested that the decapitated bodies represent thousands of smaller asteroids in the wake of Mars.

"No God has walked on Earth as a man since the first pharaoh," the priests told Herodotus (paraphrased). Narmer and the "Followers of Horus" are thereby dismissed. It is only the later pharaohs who counted. The First Dynasty is based on the theology of a "unification" of Upper and Lower Earth, applied to the land of Egypt, where a pharaohic "unification" of the country continues to be celebrated, appropriately so, for the pharaoh was the God Horus. Whenever celestial events threatened a disruption -- as with the regular overflights by Mars from 3067 BC to circa 2700 BC -- it is the pharaoh who settles the matter with the "Upper Land" and the "Lower Land" and announces that the "two lands are at peace" again. Manetho mentions some large disasters during the First Dynasty ("there were many portents and a great calamity") and again during the second ("a chasm opened at Bubastis"). Archaeologists have noted that many early monuments and graves were destroyed by intense fires.

What we think of as pre-dynastic kings -- Narmer, Scorpion, and Crocodile -- are celestial apparitions, certainly the disturbed dust and objects in plasma discharge in the asteroid belt (material which had been there in some cases as long as 40 million years) as Jupiter and Saturn moved through them. They were the last of the battle between Heaven and Earth. As recorded by the later Ennead of Heliopolis, Osiris was stung by a scorpion during the battle. The Egyptians never again mentioned Narmer, or the names of other predynastic kings, despite the fact that Narmer's serekh has been inscribed widely -- from Anatolia to the Sinai. It was a theology in flux, which settled upon a new narrative shortly before the first dynasty.

The strongest argument against Narmer, or Catfish, Scorpion, Crocodile, and the other, being human kings, is that not a single mention of any of these is forthcoming from all of later Egyptian records, legends, and histories.

Francesco Raffaele, in "Ancient Egypt: Dynasty Zero" (2002), writes:

"Narmer palette, once considered one of the key sources attesting the 'Unification' of Upper and Lower Egypt by this king, is now almost completely dismissed as a proof for such an event, and tendentially removed from discussions about Unification. Scholars now tend to look at this important object as a memorial of a military victory or as a ritual object reinforcing the role of the king through the depiction of a scene (not

necessarily happened in Narmer's reign) which was part of an already well formed iconography and ideology of kingship."

-- <http://xoomer.virgillio.it/francescoraf/>

But of course Raffaele continues to hold Narmer as a person. The Palette of Narmer is a complete depiction of the Saturnian polar apparition on the back side, and its destruction on the front side. The pharaoh is Saturn on the back, Jupiter or Mars on the front. His crown is Mars as Horus, his club is Venus attached with a plasma stream, and the captive is the long-haired planet Uranus, visually seen "below," but in actuality already long dead. Uranus had not been seen in a thousand years.

Endnotes

Note 1 --

Both the Palermo Stone of 2550 BC and the later *Turin Canon* list Horus and a second Horus. The first Horus is also called "Horus of the Gods" and is probably Mars before 3147 BC; the second Horus is the resurrected Osiris, which might have been Jupiter initially, but if so, the name was soon transferred to Mars. ("Horus" is equivalent to "Lord.") A much later (third) "Horus the Child" shows up after 747 BC.

The *Turin Canon* is a damaged papyrus document of uncertain date (estimated at 1200 BC) which was recycled in antiquity. The back of the document holds accounting records; on the front is a list of all the kings and pharaohs of Egypt, as if it is a school exercise. The Papyrus starts with a list of the primary deities. Most of the reign lengths are broken off the original papyrus, except for Geb, 744 years, Horus at 300 years, and Thoth at 3126 years. A number of temple inscriptions provide nearly the same information (that is, the order), as does the Palermo stone.

Geb is the God of Earth, and thus associated with creation. But most likely Geb represents the "land" in the sky, not the Earth, which is also why he can be assigned a finite reign. The reign of 744 years matches the span of 720 years for Alorus, the king who does not descend to Earth, of the "kings before the flood." Others, including Manetho, have equated Geb with Kronos, that is, Saturn. Since Geb is intimately involved in the creation of all the Gods, it is even more likely that Geb represents the south polar ball plasmoid of 10,900 BC to 8347 BC.

Geb's main function was to impregnate the Goddess Nut, who, at a later date, comes to represent the black night sky. Nut gives birth to the first Gods. Geb is always depicted on his back with a giant erect penis, while the Goddess Nut arches across the space above him, touching the horizon with her fingers and toes. Nut has all the looks of the arch of the Duat (she is also depicted as the celestial cow, and called "coverer of the sky"). The plasma streams of the Peratt column, which passed by Earth, connected the plasmoid in the south with some amorphous shape in the north. With the streams appearing intermittently, the image of copulation is complete.

In the *Turin Canon* Thoth is given a reign of 3126 years. If Thoth, as Mercury, lasted at least to 1200 BC, the date of the *Turin Canon*, then his birth would date to about 4300 BC. A date of 4219 BC was my initial estimate of the time when Saturn went nova (I later revised the date to 4077 BC, which would place the writing of the Turin Papyrus in 951 BC ($4077 - 3126 = 951$)). As the coma disappeared all the companion planets of Saturn would show clearly at that time. That means Thoth was first identified at the beginning of the "Era of the Gods." Ra or Re, however, should have had a much longer lifespan, except that he was officially known to have "retired" sometime after the flood of 2349 BC. Of course in this instance Ra is Jupiter, not Saturn.

[\[return to text\]](#)

Note 2 --

If Mars and Mercury returned in 3067 BC, then I would place the creation of the Narmer Palette in this year or later, since Mercury attends the procession depicted on the palette. That suggests that the pharaoh figure is Horus/Mars. Then the Narmer palette is about the appearance of Horus and Thoth, not about a celestial entity which fires plasmoid lightning bolts. This last would not have been Mars or Mercury, but Jupiter.

[\[return to text\]](#)

Note 3 --

Louis A. Waddell, in *Egyptian Civilization, Its Sumerian origin & Real Chronology And Sumerian origin of Egyptian Hieroglyphs* (1933), claims that the Palette shows upper Mesopotamian pre-cuneiform script incorporated into the four standards carried before the figure of the Red Crowned pharaoh -- a placenta, a dog, and the two falcons. Others have suggested that these were the standards of defeated nomes, but this is as conjectural as Waddell's claims. Waddell reads the marks on the standards (in an almost microscopic script) from

left to right as *"of the land of Uri and Kish city, the one king"* (the placenta shape is the Sumerian "lugal" -- king), *"of the western sunset land and of Tianu"* (Tianu is Syria and coastal Levant), *"the king of the lands and waters, the hawk"*, and last, *"the great sea-lord, the hawk."*

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Appendix G: Deep Impact.

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[\[Six Months Later\]](#) [\[Two Years Later\]](#) [\[Six Years Later\]](#)

NASA/JPL NEWS RELEASE Posted April 7, 2002

Deep Space 1 finds Comet Borrelly has hot, dry surface

"The spectrum suggests that the surface is hot and dry. It is surprising that we saw no traces of water ice," said Dr. Laurence Soderblom of the U.S. Geological Survey.

"We know the ice is there," he said. *"It's just well hidden."*

Deep Impact

For readers unfamiliar with the contact between the space probe "Deep Impact" and the comet "Tempel 1" which happened on July 4, 2005, here is a replay.

The idea was to hit a comet with something massive, to see if comets really were "snowballs" -- as was suggested 60 years ago by Fred Whipple who coined the phrase "dirty snowball." The comets have been held to be distinct from asteroids and meteors (they are not), because there was no accounting for all the water on Earth without some extraterrestrial delivery system. After all, other planets and moons have no water or very little water. Earth has a lot. Only comets, on their wild orbits, could actually reach Earth.

Additionally, it was assumed that the enormous tails of comets must be ice sublimating to water vapor due to the heating of the Sun (the sunward side of a comet may reach a temperature of over a hundred degrees Fahrenheit). This theory reached conviction when hydroxyl (OH) molecules were identified in the tails of comets, and remained in vogue even after it was recognized that the Solar Wind which shaped the glowing coma and tails of comets -- the long

stretched-out streamers -- produced them by combining Solar Wind protons (H^+) with cometary Oxygen (O^-) ions released from silicates.

Comets were also held to be "dirty," that is, covered by dust, because a comet consisting of ice or snow would reflect sunlight, and the icy material would never sublimate to form a tail millions of miles long.

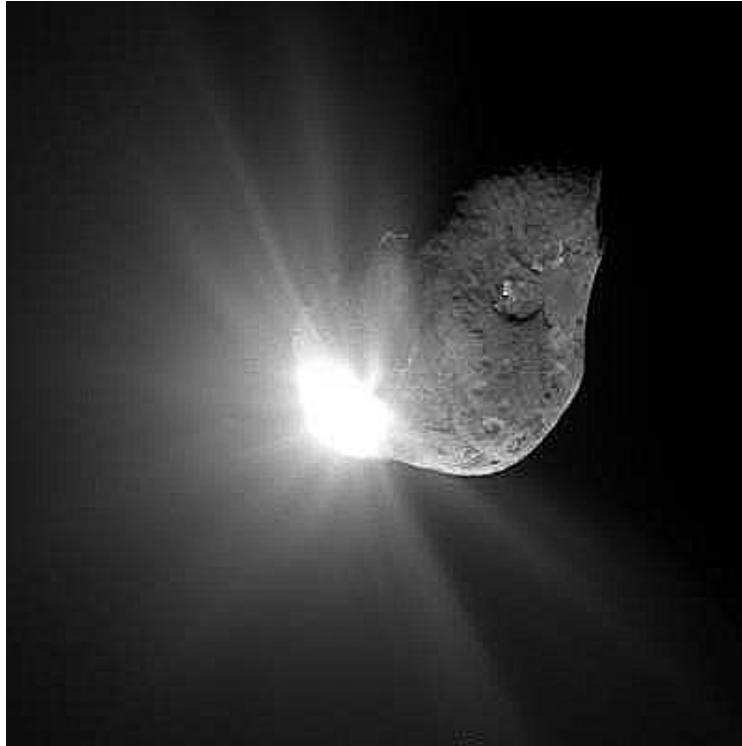
All of this consists of a picture drawn by an eight year-old. The comets become bottle rockets leaving smoke trails in space -- at times 100 million miles long (the largest objects in the Solar System), coming from an icy object less than a few miles across. At times there are dual tails, spikes pointing toward the Sun, tails moving away at right angles from the main body, and curved horns at the front. But most of these other displays have been neglected. How could a comet a few miles across form a coma as large as the diameter of the Sun -- 864,000 miles -- and a tail longer than the distance from the Sun to Earth?

There is obviously something wrong with this picture. What is even more wrong is the conviction that comets represent the coagulation of the dust of the primordial Solar System, and that these represent the formation of a planet or planets which had gone wrong.

Never mind all the contrary data, the space probe "Deep Impact" was going to close in on the comet "Tempel 1," fire a 800-pound copper projectile at some 35,000 miles per hour, and record the sequence of events both from a camera mounted on the projectile and from the spacecraft "Deep Impact" passing by at a safe distance of some 800 km. It was fully expected that the projectile would penetrate the comet, or would start a new "sublimation" point which would gush water vapor into space for the next 1000 years.

Neither happened. In fact, nothing happened to any expectations, and the community of researchers was left scrambling for new theories.

Only a few people made correct predictions. They were based on very simple concepts: (1) comets are rocks, and (2) the interactions would be electrical.



[Image: Comet Tempel 1 moments after impact by the probe from the spacecraft Deep Impact, July 4th, 2005. After NASA.]

Predictions

My Predictions

I made some predictions, first in March of 2005, when I became aware of the Deep Impact mission, which I posted somewhere on my site on July 3, 2005. I predicted that at best only a small crater would be made. NASA expects a crater the size of a football stadium, over 150 feet (50 meters) deep and 250 feet (85 meters) in diameter. I also predicted that most likely the disturbance of the comet's electrical field by the approaching probe would cause an inrush of electrons speeding ahead of the arrival of the probe, **causing an explosive arc at the impact location well before the probe arrived, as a sudden lightning stroke from the comet to the probe**, ending in a brilliant green flash as 800 pounds of copper were vaporized.

Nothing quite as spectacular as the green flash happened, although the predicted pre-contact flash happened. **Thornhill predicted the same thing** (not the *green*

flash) a day or two later, on July 5th. I do not need to claim primacy, however, because the flash would be completely predictable from an electrical standpoint.

Thornhill rightfully took some pride in predicting the pre-contact flash, and the world's media descended on him in the week after the mission. But as soon as he was identified as a Velikovsky follower, all interest evaporated, and the media packed up. This may have turned Thornhill from ever again wanting to be associated with the name of Velikovsky. But here also was a missed opportunity, for to have been able to tell the media that it is so obvious that any number of others -- electrical engineers, physicists, astronomers -- would have arrived at the same conclusion, would have ameliorated the Velikovsky contamination.

I should also point out that a brilliant object in space traveling toward a spaceship had happened before. I recall an incident where a spacecraft, on approaching a moon (a planetary satellite), recorded what looked like a missile traveling at high speed from the moon. The space ship lost radio contact a second later. I need to find the source for this.

I wrote:

"Let me hedge my bets: If the probe makes contact with the comet, that is, if it makes a splashdown, it will provide a large blotch of copper to act as future site of any of the sporadic bursts of plasma that the comet now undergoes periodically."

Wrong again, sort of. What actually happened went completely beyond all expectation.

I wrote:

"It is also possible that no significant fireworks display will be seen. *Comet Tempel 1* comes to perihelion outside of the orbit of Earth, and originates from the space beyond Jupiter. Its charge is likely to be mostly equalized to the local electrical field of the Sun, as can be seen from the small jets of plasma which are only sporadically emitted."

"But I can certainly predict expected mainstream reactions."

... and listed the following:

- "In the event of a small impact crater, NASA will come up with a new theory of super-hard ices in space, or suggest a 10-foot-deep impenetrable crust of

solidified rock."

- "If the copper-coated impact area becomes the favored location of new flares, it will prove to NASA that the comet is 'outgassing' at a new location, and probably due to an assumed deep hole made into the ice."
- "A flare-up of the comet before impact will suggest a slight mishap, to be cast in terms of, *'An unexpected disruption of subsurface ice exploded in the direction of the probe, due to gravitational shock waves, gravitational eddy currents, gravitational inequalities, gravitational tidal forces.'* [joke]"

Added note: This *was* a joke, but two months later NASA is suggesting that perhaps the other marks on the comet, which are normally assigned to impacts, might be due to underground "icy volcanic eruptions."

I wrote:

"We will again be left with nothing proven. Stay tuned."

That turned out to be correct.

Wallace Thornhill

On July 3rd, 2005, a day before the impact, the Saturnian Group also made some public predictions for the impact of the 800-pound projectile fired at *Comet Tempel 1*. See the TPOD by Wallace Thornhill at [\[http://thunderbolts.info\]](http://thunderbolts.info) (modified on March 4, 2006, and at other times, most recently on May 24, 2012).

Specifics were listed as follows (abbreviated by me, with some comments added in square brackets):

- *"The most obvious [result] would be a flash (lightning-like discharge) shortly before impact."*

I should point out that this prediction was the most radical and interesting, and the one which rushed the press to Australia. But they dispersed as soon as they learned that Thornhill would base his prediction on the theories of Velikovsky. A later web-based blog called the Thunderbolts.info "a crank web site set up primarily to sell crank books." More obvious comments on this further below.

- *"The impactor may form a sheath around it as it enters the coma, becoming a 'comet within a comet.'" [that would not be at all obvious, except that a 'space charge' might disrupt radio communication.]*
- *"Electrical stress may short out the electronics on board the impactor before impact." [This of course would be true only if an initial electrical contact from the comet was to be of astounding magnitude. The space charge surrounding the projectile would in effect isolate it from the electrical properties of the comet.]*
- *"More energy will be released than expected because of the electrical contributions of the comet."*
- *"Copious X-rays will accompany discharges to the projectile, exceeding any reasonable model for X-ray production through the mechanics of impact."*
- *"Any arcs generated will be hotter than can be explained by mechanical impact. If temperature measurements are made with sufficient resolution, they will be much higher than expected from impact heating."*
- *"The discharge and/or impact may initiate a new jet on the nucleus (which will be collimated -- filamentary -- not sprayed out) and could even abruptly change the positions and intensities of other jets due to the sudden change in charge distribution on the comet nucleus."*
- *"The impact/electrical discharge will not reveal 'primordial dirty ice,' but the same composition as the surface." [rock!]*
- *"The impact/electrical discharge will be into rock, not loosely consolidated ice and dust. [this restates the above] The impact crater will be smaller than expected."*

Tom Van Flandern

Long after the date of the impact I became aware of Tom Van Flandern's predictions, written in January of 2005, seven months before the impact date:

"The comet nucleus is a single, solid asteroid. The impact will leave a small, shallow crater perhaps 10-20 meters in diameter, will produce no new jet, and will have no lasting consequences on the comet. It will simply produce an impact flash as the probe vaporizes, then will cause the comet's coma to temporarily brighten as new carbonaceous dust is ejected from the asteroid regolith and the impact crater."-- Tom Van Flandern, <http://metaresearch.org>

Van Flandern's predictions were **absolutely correct** -- based on his conviction that comets are rocks. Van Flandern does not allow for electrical interactions, which ended up widening the "impact crater" and heaved into space an incredible amount of fine dust.

But it seems almost immaterial to be so dead-on correct, as Thornhill was, for there is a much larger issue -- the investment in the current model of comets as soft conglomerations of particulate matter. As Van Flandern writes, "The dirty snowball model is not sure what will happen, but has an explanation ready for each possibility. In that way, the model will not be placed at risk of falsification." He continues:

"In brief, there is a general expectation that the impact will be gravity-dominated, while respecting the possibility that it might be strength-dominated. Either result will be argued as supporting the dirty snowball model for comets, even though the latter implies that the comet has been heavily processed and is not primordial."

"Just as Kuhn predicts for the nature of paradigm shifts, [T.S. Kuhn, 'The Structure of Scientific Revolutions' (1996)] one model will not overthrow the other on merit, but the incumbent model will be patched until it so closely resembles the competitor that no important distinction remains. That helps to maintain the illusion that the progress of science is always forward."

The Fireworks

[July 5, 2005:] The first observations of July 4th, from a number of sources, compared with predictions as listed above.

"... at best only a small crater would be made."

Although difficult to measure, a NASA spokesperson suggested "at least bigger than a house," that is, 30 feet (10 meters) in diameter -- not 250 feet. This changed soon, for as soon as the impact crater was made, electrical arcing started up at the edges. Over the next few days this would enlarge the original crater to form a shallow depression as the electrical arcing wore away material from the sharp edge. Thus the original suggestion of a crater the size of a house was soon modified to suggest that it was much larger.

"an explosive arc at the impact location well before the probe arrives ... followed by a sudden arc from the comet to the probe"

The initial flash at the impact point was bright and small -- and of only 50 milliseconds duration -- and separate from a secondary conical blast of material. I have no idea of the timing of this bright spot, that is, when it first appeared. The probe was to take images every 2 seconds until impact, but the last image was transmitted 3.7 seconds before (calculated) impact. I would suggest it was "hit" at this time. The probe was traveling a little over 6 miles per second, with 24 miles to go before impact. The probe also faltered twice in earlier transmissions during approach. It would suggest electrical disturbances, that is, plasma sheath shielding (mentioned as likely by Thornhill).

"... ending in a brilliant green flash as 800 pounds of copper are vaporized."

That was my suggestion and I was dead wrong about that. I admit that I never took note of the approach speed -- which was on the same order of magnitude as for a meteorite strike to Earth. I was actually surprised that this speed was attempted, because for objects in space the speed of impact is determined by the escape velocity of the larger object. For Earth this is 25,000 miles per hour. For the Moon this is 5,000 miles per hour. For smaller objects it is much less. For an asteroid sized comet this would be only a little more than nothing.

Also, I have seen nothing more anywhere of all the copper molecules which should have been part of the initial impact explosion.

"... [the copper molecules] will provide a future site of any of the sporadic bursts of plasma that the comet now undergoes periodically."

After the initial flash, material was noted as being ejected straight up in a column. That is certainly not the mark of impact ejecta; it is the mark of a cathode strike. This was correctly predicted by Thornhill. NASA would suggest later that this meant that the probe bored a deep hole in the snow and ice, like a well or a gun barrel, which "shaped" the initial ejecta.

A conical ejecta started after the initial appearance of the column, and became increasingly larger with time. Although this could be understood as a large and deep hole made in the surface, it could also be a shallow crater whose size is progressively being enlarged by electrical sputtering at the edges of the crater. The conical ejection seemed to be sidelit by the Sun. We will have to see if this stops or continues.

"More energy will be released than expected because of the electrical contributions of the comet."

"Copious X-rays will accompany discharges to the projectile, exceeding any reasonable model for X-ray production through the mechanics of impact."

Thornhill was certainly correct in this. Van Flandern did not anticipate this, because there was no electrical interaction presumed. The sustained burst after impact amazed all the researchers. They have had to go to extremes to explain it.

No mention has been made yet of spectral analysis. As with Halley's Comet in the 80's, an X-ray source will be identified, and then simply neglected.

"In the event of a small impact crater, NASA will come up with a new theory of super-hard ices in space, or suggest a 10 foot deep impenetrable crust of solidified rock."

NASA has in fact suggested the opposite, namely that the probe hit a soft outer layer before being crushed (in actuality "vaporized") by deeper harder material ("ice"). The suggestion follows from the massive conical "flare" which appeared and enlarged after impact.

"Because the impact area is in sunlight and thus facing the Solar Wind of incoming protons, more water molecules will be produced by combination of protons with the oxygen ions than what is normally found in the outer reaches of the tails of comets."

Did I say this? This clearly has turned out to be untrue -- much fewer water molecules were being produced than expected.

"The discharge and/or impact may initiate a new jet on the nucleus and ... could even abruptly change the positions and intensities of other jets."

It was initially claimed that the relocation of jets did not happen. It was later claimed that the relocation of jets did happen. Actually, no one took note of any of this, for it was certainly not a concern of the accepted model of a comet. But the intensity remained the same. Two weeks later the comet had returned to the sporadic bursts of plasma which it exhibited before the impact.

The Aftershocks -- A Week Later

NASA keeps talking of snow and ice in their press releases. Other sites investigating the impact have other things to say, at times in contradiction.

The first images returned from the Deep Impact flyby spacecraft showed a small fireball followed by a much larger, incandescent flash that engulfed one end of the comet Tempel 1. Observatories on the ground reported that the explosion brightened the comet by a factor of five within 15 minutes of impact.

It is really strange how the flash expanded quite slowly -- as if the edges of the crater were on fire. But this is entirely expected as an electrical phenomenon.

The impact sent up twin plumes of debris, the first appearing as a narrow column that cast a long shadow across the comet. Another plume appeared seconds later on the heels of a brighter explosion, then fanned out in a star shape.

Co-investigator Pete Schultz said the twin flashes showed that the impactor encountered softer, layered material on the comet's surface then hit a thick, hard crust. (Sydney Morning Herald, July 6)

A comet is composed of two parts, the larger coma, seen in glow-level plasma discharge, and the rocky interior, called the nucleus, which is the source of the coma. The initial plume was probably the ionization of the trajectory of the impactor, made visible with a glow-discharge plasma expulsion. It was not impact debris, which would create a spherical expulsion of material.

Scientists studying the Deep Impact collision using NASA's Swift satellite report that comet Tempel 1 is getting brighter and brighter in X-ray light with each passing day.

The X-rays provide a direct measurement of how much material was kicked up in the impact. This is because the X-rays are created by the newly liberated material lifted into the comet's thin atmosphere and illuminated by the high-energy Solar Wind from the Sun. The more material liberated, the more X-rays are produced. (from harvard.edu/press/pr0523.html)

That was just **totally bogus**. X-rays are produced by intense concentrated electrical arcing, and not by interaction of the ionized material with the

incoming Solar Wind, which only interacts at the limits of the coma, not by dust locally lifted into space.

[Added Note: It has been pointed out to me by others too that the Solar Wind probably has nothing to do with this. If silicates were released by arcing, and electrostatically repelled from the arc site, the surplus of electrons available from the comet, at the same location, would be enough to account for the production of X-rays.]

Mike A'Hearn of the University of Maryland and Pete Schultz of Brown University:

"At the moment of impact, you heat materials to extremely high temperatures. Some of that is heated vapor. Some of that is melt droplets from within the crater itself. It is like a flashbulb -- material that is glowing so brightly that it illuminates its own picture."

Such an incandescent flare had been visible in impact experiments he performed at the NASA Ames Vertical Gun Range facility in order to prepare for the Deep Impact encounter. In fact, Schultz explained, those experiments had contributed to the design of the image sequence for the impact; because of the possibility of an impact flare, the flyby spacecraft was instructed to take images at a high frame rate, once every 50 milliseconds [20 frames per second].

The flare is visible in only one of those frames, meaning that the flash lasted for less than 50 milliseconds after the impact. [Actually, before impact.]

Following the flare, Schultz said, there was a delay of a few frames before a plume of material can be seen to exit the impact point. The plume actually casts a shadow across the surface of the comet, a shadow that will eventually help the science team pin down the precise location of the impact crater. That few-frame delay indicates a layered structure for the comet, Schultz explained. "My guess is there was soft layering on top, [the impactor] went down, and finally got in contact with ices."

The vaporization of ices likely produced that narrow plume. Following the plume, a broad curtain of slower-moving material can be seen to spread out from the comet. The initial flash is an umbrella-like vapor plume. And then we see the large column. And then the curtain. The curtain later on tells us

that the crater is expanding slowly, like you would expect from loose material. (The Planetary Society, Emily Lakdawalla, July 4, 2005)

The circular arc ("curtain") and the increasing size of the crater are expected from the "machining" (electrical sputtering) action of a circular arc. A depression forms as material is removed by arcing, which relocates the arc to the raised edge of the depression.

Results are still coming in, but so far the scientists report seeing only weak emission from water vapor and a host of other gases that were expected to erupt from the impact site. The most conspicuous feature of the blast was brightening due to sunlight scattered by the ejected dust.

I should note the obvious, that if the plume represented dust illuminated by sunlight, there would have been a shadow. The circular plume cast no shadow. It was fine dust with electrons in glow mode.

"It's pretty clear that this event did not produce a gusher," said SWAS principal investigator Gary Melnick of the Harvard-Smithsonian Center for Astrophysics (CfA). "The more optimistic predictions for water output from the impact haven't materialized, at least not yet."

Astronomer Charlie Qi (CfA) expressed surprise at these results. He explained that short-period comets like Tempel 1 have been baked repeatedly by the sun during their passages through the inner Solar System. The effects of that heat are estimated to extend more than three feet [one meter] beneath the surface of the nucleus. But the Deep Impact indicates that these effects could be much deeper.

And now for some contradictory information:

SWAS operators were puzzled by the lack of increased water vapor from Tempel 1. Post-impact measurements showed the comet was releasing only about 550 pounds of water per second -- an emission rate very similar to pre-impact values, and less than seen by SWAS during natural outbursts in the weeks before the impact.

SMA measurements corroborate the SWAS findings. Although the SMA wasn't tuned to frequencies of water emission, which are difficult to observe from the ground due to atmospheric water vapor, it watched for other chemicals such as hydrogen cyanide.

SMA astronomers saw little increase in production of gases following the impact. Gas production rates remained so low that they could set only an upper limit on the total. (source)

Researchers on Hawaii's Big Island ... concluded from the mid-infrared spectroscopic observations that there was strong evidence for silicates or rocky material exposed by the impact. (Gemini Observatory News Release, July 7)

Scientists monitoring NASA's Swift satellite had a good view of Deep Impact's collision with Comet Tempel 1. ... One of its most important observations from the impact is a quick rise in ultraviolet light. This means that the impactor struck a hard surface, as opposed to something soft and snowy. (July 7, Joint Astronomy Centre)

Summing Up

- One source, looking at the ultraviolet flash, says the impactor hit a hard surface. NASA and related sources assume a soft surface on the basis of the dust cloud.
- One source discounts any increase in water vapor after the impact. NASA still holds that ice was hit.
- NASA and others are surprised at the fine powder lifted into space by the impact. They had expected coarse-sized debris as would happen if the cloud were ejecta from an impact.
- Many sources were completely surprised at the size of the flash, assuming this to be volatilized material -- supposedly water vapor, and the fact that it continues unabated a week later.
- One source has identified the "ejecta" as composed of silicates -- ground up rock. NASA has been mum on this.
- Any number of sources assume that the X-ray production is caused by the Solar Wind impinging on the "dust." It is an interaction with ions and electrons.
- The preliminary flash and the subsequent plume which rose straight up remain unidentified.
- The size of the crater remains small despite the fact that enormous amounts of material are being lifted into space (into the coma).

Two Weeks Later

The only news is that NASA now claims that the comet was covered with "cosmic talc" which would account for the gigantic -- and totally unexpected -- clouds of "dust" after the impact, which subsided after a few days or a week. NASA still does not know the size of the crater, guessing at 150 to 750 feet (250 meters). Apparently the crater size has increased, as expected, from the initial guess of 30 feet (10 meters).

The relocation of the periodic bursts to the impact site has not happened. The ESO reports: The flare only lasted a few days, and two weeks later the comet had returned to its earlier intermittent flares, at old locations. The ESO also claims that the impact "has failed to free up a large quantity of untouched material from beneath the surface."

Meanwhile, Thornhill has posted a summary of findings at [\[http://www.holoscience.com/news.php?article=3kneumjj\]](http://www.holoscience.com/news.php?article=3kneumjj) and [\[http://www.thunderbolts.info/tpod/2005/arch05/050719deepinterim.htm\]](http://www.thunderbolts.info/tpod/2005/arch05/050719deepinterim.htm).

Thornhill also suggested (in a previous post) that NASA is rapidly forgetting things -- like the initial flash, and the magnitude of the blast of light. This last is being turned into "sunlight reflecting on fine dust" rather than the more obvious "electrons in a state of high excitation." Of course the fine dust will be there as the initial cathode strike sputters solid rock into tiny fragments -- but so will the electrons and ions. Thornhill also mentioned that data is being removed from NASA websites.

Two Months Later

(November 2012) I have been tempted to remove all the following material, because there is such a surplus. But I have let it stand because in retrospect it is such a delightful collection of insane "scientific" nonsense, that I simply could not remove it.

The following is abstracted and partially quoted from *Science News* Sept. 10, 2005, an article by Ron Cowen. The hemming and hawing of the scientists speaks for itself. I apologize for the length of the following quoted material, but it is so interesting to see words wend their way around facts to do a complete conceptual reversal. After reading this you will ask, what is the hidden agenda? Some comments at the end.

[Researchers at the University of Maryland, under contract to NASA] ... *claim that now we are for the first time "directly measuring pristine material from deep inside a comet, material that has been locked away since the beginnings of the solar system,"* and note that *the primary constituent of the comet may be dust particles finer than talcum powder, and the comet may be "far more porous than a solid chunk of ice. Its structure is more fragile than that of a soufflé,"* quoting Jay Melosh of the University of Arizona in Tucson.

These findings are presented at an American Astronomical Society's meeting in England, and as papers published in *Science*.

"We simply don't have any idea how you go from ... tiny pieces of dust and ice, one-tenth to one-hundredth the width of a human hair, to building a comet," notes Lisse (U of Maryland).

Just milliseconds after the impact, the spacecraft recorded a faint flash that faded away in less than a second. Melosh and his collaborators propose that the flash denotes the instant when the 1-meter-wide bullet, coming in at an angle of about 60° from the vertical, hit the surface.

This was probably the movement of electrons reaching up to ionize the incoming path of the impactor. Oops, this is not the pre-flash; Lisse is talking about an after-flash.

A fraction of a second later, as the bullet began boring into the comet, an incandescent, hot spray erupted, traveling about 10 km per second. "[That] explosion is so violent that everything in its path is boiled off and swept out," says Lisse.

Consisting of searing vapor and droplets of melted silicate at a temperature of 3,800 kelvins, the spray was so bright that it completely overwhelmed the solid-state detectors on the flyby spacecraft, stationed about 800 km away. Infrared spectra indicate the droplets were 10 to 100 nanometers in diameter.

The high-velocity spray, which lasted for less than a second, was most likely created as the copper bullet vaporized comet material some 20 to 30 m beneath Tempel 1's surface. The bullet melted or boiled about 10 times its weight in ice and rocky particles.

I really doubt the 90-foot-deep (30 meter) hole. It is not based on observations, but is based on calculations of the amount of material ejected, and assumptions about the density of the comet. At a later date the NASA researchers will claim a density of one-tenth of Earth rocks. That would make the crater only 9 feet (3 meter) deep. Once "calculated" at 90 feet, this will reappear in other statements as fact.

... the bullet left behind a slow-moving sound wave or shock wave. This shock wave, spreading gradually through the comet's interior for as long as 5 minutes, appears to have carved out a deep crater. "That's an indication that the comet is fluffy," Lisse notes, "In a more-solid object, the shock would have bored a shallower hole," he says.

As I will repeat: the crater has not been seen.

The wave kicked up a plume of cool, extremely fine dust that lingered for more than 40 hours. The shock ejected an estimated 10 million kg of material.

Most of the dust lofted into space by the shock wave had an average velocity of about 1 meter per second. That low speed was still enough to overcome the comet's weak gravity, which is about one-millionth that of Earth, notes Jim Richardson of Cornell University.

Richardson estimates that in 2 days, about 95 percent of the dust particles had fallen back onto the comet. Because the particles were so small -- most no more than 100 micrometers in diameter -- they scattered nearly all the sunlight falling on them, rendering the funnel-shaped plume opaque. "It was almost a solid fountain of dust," says Lisse.

The dust shroud hid the crater gouged by the bullet during a critical period, the first 800 seconds after impact, when the craft's high-resolution camera would have had a close-up view of the comet. A'Hearn and his colleagues had intended to image the bottom of the crater to measure its depth and determine its composition.

Team members are now debating whether they can see signs of the crater in close-up images taken by Deep Impact's high-resolution camera. A flaw discovered after Deep Impact's launch had left that camera with a less-than-perfect focus.

During the last minute or so of the close-up images taken by Deep Impact, some of the dust had begun to clear. While the crater isn't apparent, the scientists got a blurry glimpse of the bottom part of the plume, Richardson says. From those observations, the researchers estimate that the crater is about 100 m wide and 30 m deep [the 90-foot-deep hole], in good agreement with Spitzer Space Telescope estimates of the total amount of dust ejected.

Those dimensions imply that the impact excavated cometary material that's pristine and primitive, from the earliest days of the Solar System, notes Melosh. A shallower crater would probably contain material altered by the sun. Warming during Tempel 1's repeated passages near the sun over thousands of years might have caused sudden eruptions of gas and dust and altered the composition of material several meters beneath the comet's surface, but not 30 m deep [the 90-foot-deep hole again].

Despite scientists' difficulties in imaging the crater, other observations reveal that Tempel 1 is extraordinarily fragile, composed of small particles bound together only weakly.

The depth to which the bullet penetrated, for example, attests to the fragility of the comet, Melosh adds. Had the comet contained denser, more strongly bound material, the bullet wouldn't have penetrated to a depth of 30 m [the 90-foot-deep hole].

By analyzing images of the dust plume taken by the Deep Impact craft 45 and 75 minutes after the collision, Richardson and his colleagues measured the expansion rate of the plume. That rate is controlled by the comet's gravitational field, so once the gravity of the comet is known, researchers can estimate its density.

The expansion measured indicates that the comet is highly porous, with an estimated density just 60 percent that of solid ice, and less than one-quarter that of the lowest-density rocks on Earth.

As weak as the comet's gravity is, it still managed to keep the expanding plume anchored to the surface during the entire 40 hours that it remained visible. That's another hint that the gravity is sufficient to hold together the comet as a loose agglomeration of particles.

"Keeping it anchored" is another one of those iffy phrases. To the researchers the cloud is a glob of dust hovering over the comet. They cannot imagine how it is held in place after being ejected. The forward speed of the dust should have released it entirely from the gravitational grip of the meteor.

The plasma people understand it differently. The particulate matter is ionized silicates -- electrically charged rock dust. The particles are electrically repelled from each other, and therefore spread away from each other. That accounts also for their initial leap off the surface. But at the same time they are attracted to the negatively charged surface of the meteor and continue to hover.

Melosh's calculations suggest that when the comet coalesced, it did so at pressures and temperatures too low for water to be liquid. Liquid water glues together dust and ice particles in many other materials.

For the same reason it's hard to make a snowball on a day too cold to melt ice, the grains of ice and dust that make up Tempel 1 just barely stuck together. As the object grew in size, however, its gravity, although weak, held the pieces in place, conjectures Melosh.

The spectra obtained from both the Deep Impact spacecraft and the Spitzer Space Telescope reveal that the composition and temperature of the plume remained the same from a few minutes to hours after the bullet hit. That's an indication, says A'Hearn, that the composition of the comet material remains the same from near the surface to 30 m down [the 90-foot-deep hole].

About the looks of the surface of the comet, the following was noted:

"We have a resolution better than any previous mission to a comet," says Veverka. The pictures, which portray about one-third of the comet, show a puzzling variety of smooth and rugged terrains, he notes.

Craterlike outlines on some parts of the surface indicate that, unlike other comets seen close-up, it's been repeatedly beat up by Solar System debris for eons. It's as if "the whole cratering history [of the Solar System] is preserved on its surface," says Veverka.

Yet some other regions show a smooth, flat, 20-m-high line of cliffs that defies any ready explanation, Veverka notes. Some of the smoothing, he notes, may result from frozen material sublimating from the surface,

exposing terrain that lies beneath but then falling back to create a fresh deposit.

One possible explanation is that sunlight triggered an icy volcanic eruption meters below the surface. The erupting material, trapped underground, might have spread out horizontally in the porous interior, like the frosting between the layers of a cake.

The strange behavior of a very weak gravity, the gluing together of microscopic dust particles, the assumed "baking" by the Sun, the older impact sites which have done no more damage to the soufflé than a mild indentation, the "shock wave" which took five minutes to travel 50 yards, a plume of dust anchored by gravity, the suggestion of "icy volcanic eruptions," the deep penetration hole [the 90-foot-deep hole] which has yet to be seen, and the repeated equipment failures -- these all speak of soufflé science.

It is interesting that such diverse readings -- the plasma version and the dirty snowball version -- could be extracted from the same data. Yet all the data is there. The snowball version, however, lacks any substantial physics; the concepts are constantly undercut with inexplicable "surprises."

I have a fair suspicion that NASA knows damn well that the projectile hit a giant rock, not a pudding of mushy snow, that the fireworks were an electrical explosion, and that the cloud of "dust" was rock which had been vaporized in the electrical explosion.

But this information should not enter the public domain, because it will cause unneeded anxieties. If people knew that comets indeed consist of solid rock, and additionally are capable of exploding electrically, there would be panic about what would happen if a comet ever approached Earth. The earlier idea of, "we'll just nuke it," would have to be removed from consideration if comets are solid rock and if we get the sort of energetic reaction that we have just seen with the impact of a mere 800-pound chunk of copper.

Retaining the idea that comets are just cotton candy keeps them nukable, makes everyone feel confident that we can control these objects, and extends research programs for NASA.

Six Months Later

In January 2006 a package from the spacecraft "Stardust" landed on Earth. I'll quote the leading paragraph from thunderbolts.info's TPOD:

"The first results from NASA's Stardust mission are in, leaving mission scientists in a state of shock and awe. The tiny fragments of comet dust brought back to Earth [anorthite, forsterite, and other silicates] did not accrete in the cold of space, but were formed under 'astonishingly' high temperatures."

-- [<http://www.thunderbolts.info/tpod/2006/arch06/060316stardust.htm>]

The stuff consisted of silicates -- rock dust.

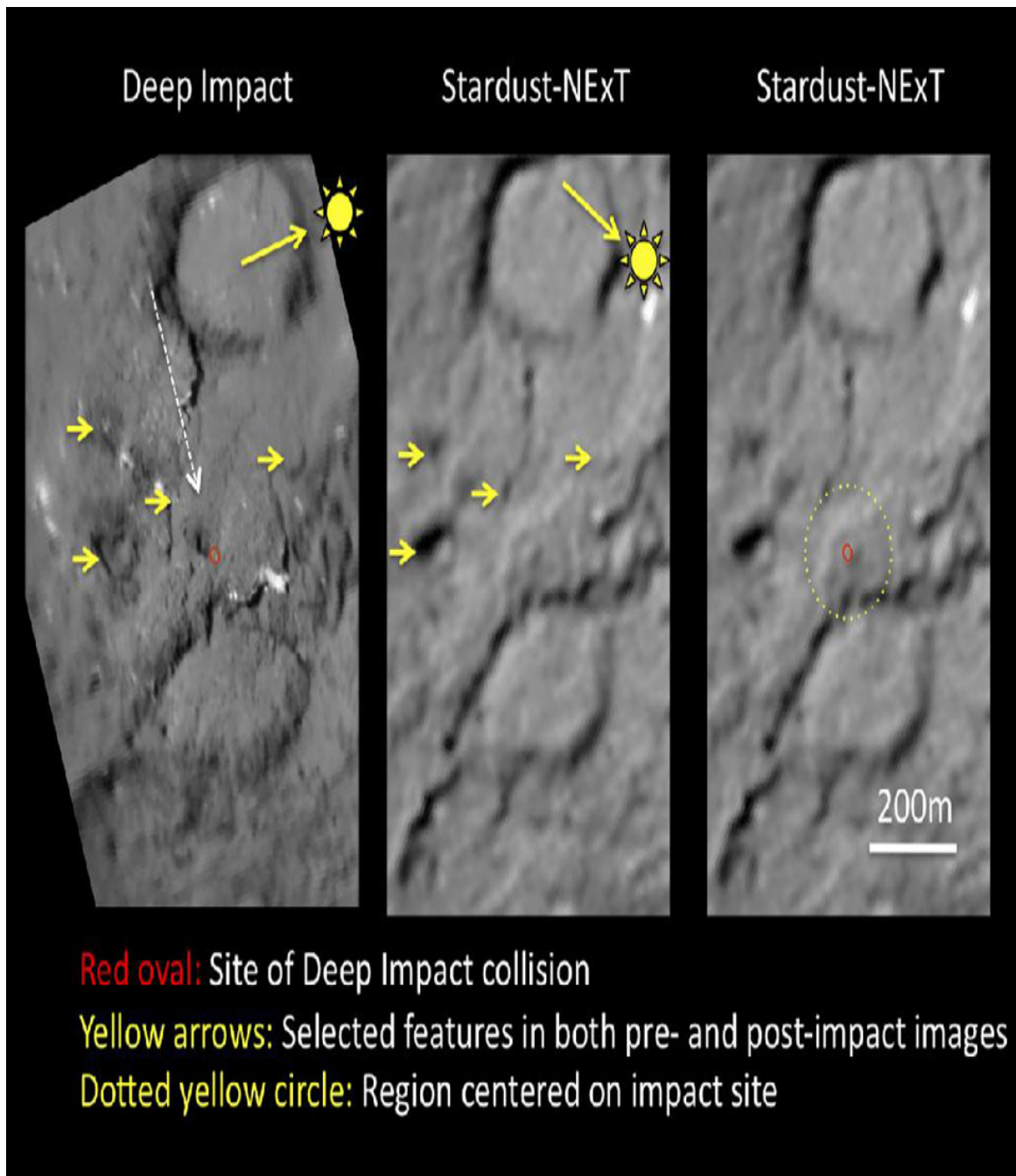
Two Years Later

Official papers were published in *Science* in 2005.

In the book *The Electric Universe* (2007), Wallace Thornhill and David Talbott elegantly sum up the evidence of the two positions I mentioned above -- that comets are rocks, and that the interactions will be electrical -- for Comet Tempel I and for 15 years of space research (along with other *Electric Universe* aspects).

Six Years Later

In February of 2011, NASA has rerouted a spacecraft to take another look at Tempel 1, now six years since the impact by Deep Impact. The inspection tour was known as the Stardust-Next mission. The area of the 2005 impact was photographed, and did not show what was originally thought to be a 90-foot deep hole the size of a football field.



[Image: Deep Impact contact area with comet Tempel 1, 6 years later, February 2011. After NASA.]

It is hard to tell, for although NASA claims that there is a depression of 150 to 250 feet (50 to 85 meters) , there is no shadow and no show of any depth. Representing NASA, Peter Schultz claimed "We see a crater with a small mound in the center..." I see no crater at all. But then Schultz goes on to explain this as "some of the ejecta went up and came right back down."

And then comes the soufflé conclusion reached by Schultz, "This tells us this cometary nucleus is fragile and weak based on how subdued the crater is we see today," but in complete contradiction to all previous theories offered by NASA. Ratcliffe wrote at one time: "theories from the secret minds of tadpoles."



Appendix H: Other Cosmologies.

\$Revision: 42.2 \$ (other.php)

Contents of this Section: [\[Zecharia Sitchin;\]](#) [\[Planet X\]](#) [\[Eric von Daniken\]](#) [\[Supernova\]](#) [\[Orion's Belt\]](#) [\[De Grazia's Binary Star\]](#) [\[Patten's Mars-Earth Wars\]](#) [\[Ackerman's Firmament\]](#) [\[Clube and Napier\]](#)

"The ingenuity of such nonsense is breathtaking."

-- Wal Thornhill, <http://www.holoscience.com> (2004)

Speculative Cosmologies

Following are some alternative cosmologies which do not explain or do not hold together, even though many are well researched. I have added my comments only as needed. Most are not so much complete cosmologies as they are explications of catastrophic events in the era from 10,000 BC to the 7th century BC. Most take for granted the current state of the Solar System and the handed-down narratives of its genesis. That will do, although, as described on these pages, it is seldom correct.

[An added note, May 2015] I have had to drop a number of these for they completely disappeared off the internet. Others which were originally listed in this Appendix are covered among the endnotes of Chapter 2. I have kept some classic catastrophists. But first a note from Phil Burns, who has commented on some of these:

"My personal feeling is that any historical content that might underlie myths of cosmic catastrophes is difficult to extract and remains subject to multiple interpretations. Interpreting such myths literally is likely to lead to untenable hypotheses involving large scale disruptions of the Earth and solar system that cannot be sustained from physical evidence."

I agree, but I think that "large scale disruptions of the Earth and solar system" can be sustained, certainly and unquestionably, from physical evidence. Burns

should get off his couch and fly across the Western United States in a Piper Cub. Burns goes on:

"Myths tell us how the ancients perceived the universe, not necessarily how the universe really worked. Trying to rewrite physics and astronomy based upon mythological interpretation is a fundamentally incorrect procedure."

-- [\[http://www.pibburns.com/catastro/myths.htm\]](http://www.pibburns.com/catastro/myths.htm)

I don't think there are many attempts at rewriting physics. Even a complete mythological fantasy would retain the physics of the universe. What we see instead are questions of how, within the physics we know, some events could have happened. There are more absolutely insane attempts at suggesting new and unimagined physics among legitimate astrophysicists than there are attempts at rewritings among the alternative cosmologists and catastrophists. The astronomer Hilton Ratcliffe, in *The Virtue of Heresy* (2007), notes in reference to String Theory and Dark Matter, that:

[For String Theory]... nothing of any measurable or useable consequence at all has rewarded decades of efforts by brilliant but misdirected minds. The hunt for Dark Matter, being on mature evaluation nothing more than the pursuit of black magic, really brought some highly speculative theories out of the secret minds of tadpoles."

As remarked by Kurt Gödel, "Concepts indifferent to the details of their formulation are absolute." There are broad concepts among the various catastrophic cosmologies which are inured to the details of different retellings, which fare much better on a scale of "intuitive speculation" (as Tom Van Flandern calls it) than String Theory or Dark Matter. One of these cosmologies, or some of these, or various parts of some of these, are absolute and will represent the true history of the past.

And who would want to rewrite physics and astronomy? I think the real question is, Why are we afraid to enter the imagination of the ancients? Certainly we should be able to make sense of what lies behind "How the ancients perceived the universe." Could we not exercise *our* imagination to find possibilities without rewriting physics?

The following is a sampling of the work of others who believe this to be true, ranging from bizarre to sublime. I started to understand "fringe" as a border of

loose threads, rather than "outer edge," although I respect the work that went into these. Some are followed by comments. Others require none.

If I have misrepresented anyone, it is an oversight. I will gladly correct the capsule descriptions below, although my evaluations will (probably) remain the same. I have excluded the works by Immanuel Velikovsky, David Talbott, Wallace Thornhill, Tom Van Flandern, and a number of others. See the [\[books\]](#) and [\[links\]](#) pages for more.

== Zecharia Sitchin ==

From an article in *Atlantis Rising Magazine* describing the work of Zecharia Sitchin, *The 12th Planet* (1976) and additional books, *The Stairway to Heaven* (1980), *The Wars of Gods and Men* (1985), *The Lost Realms* (1990), *When Time Began* (1993). The official website is at [\[http://www.sitchin.com/\]](http://www.sitchin.com/) but less lucid.

"... According to Sitchin, mankind owes most of its ancient legacy to visiting extraterrestrials. The Russian-born Israeli resident and ancient language expert has indeed come up with some very intriguing, if not compelling, data. Indeed, few can match Sitchin's scholarly credentials. One of a handful of linguists who can read Sumerian cuneiform text, he is also a recognized authority in ancient Hebrew as well as Egyptian hieroglyphics."

"Not a little controversy, though, surrounds his unusual method of interpreting the ancient texts. Sitchin insists they should be read, not as myths, but quite literally, essentially as journalism."

A single mention of "extraterrestrials" is enough to turn me away entirely. Such insanity can only be sustained by someone who has not the slightest concept of the dimensions of space and who lacks an appreciation of the span of time it has taken for life to achieve the complexity we experience.

[Sitchin has presented] "extensive 6,000-year-old evidence that there is one more planet in the solar system, from which astronauts, the biblical giants (nephilim), came to Earth in antiquity. Laid out in the series is an elaborate tale of space travelers from the theoretical 10th planet (12th if the Sun and Moon are included) in the solar system, called Nibiru, or Marduk in Babylonian."

"This planet, claims Sitchin, has a very eccentric orbit traveling from far beyond Pluto, cutting across the orbits of the rest of the planets, and then half-circling the Sun between Mars and Jupiter, taking 3,600 Earth years in the process."

"On its closest orbital approach, about 450,000 years ago, a band of Nibiruans known as the Anunnaki, landed on Earth in Southern Mesopotamia and proceeded to mine gold, evidently needed for their planet's survival. Early efforts in the Persian Gulf proved inadequate, so underground mining in South Africa was begun."

-- from atlantisrising.com.

Nothing, of course, has ever been sighted of a 10th planet. Notice that Sitchin lacks the imagination to extend the wonders of the past beyond the objects, desires, and thinking of his own milieu. I was also going to note, "Well, damn, what would you expect to find in the Persian Gulf, except mud?"

--== Planet X ==--

Planet X, or alternately "Nemesis" or "Nibiru" after Sitchin, or some such interloper, is the topic at Andy Lloyd's website, to be followed by a book titled *The Dark Star*. Following is a brief quote from the opening page of the website.

"... the potential for a small brown dwarf to be found orbiting the Sun is not only scientifically plausible, but would enable us to tie up a great number of loose ends in ancient religion and mythology."

"The recent discovery of the minor planet Sedna lends credence to this claim on a number of levels. I have now updated this theory substantially, moving closer to Zecharia Sitchin's own previous work but also incorporating a swath of new scientific findings into an elegant new hypothesis."

-- [<http://www.darkstar1.co.uk>]

As I have pointed out, the small brown dwarf was Saturn. Sedna is a very small rock which will hardly answer to the requirements.

--== Eric von Daniken ==--

Eric von Däniken's book *Chariots of the Gods* (1968) is alive at the site where the "Archaeology, Astronautics & SETI Research Association" publishes the quarterly *Legendary Times* on the web. To quote from their opening page:

"The A.A.S.R.A. is determined to prove whether or not Extraterrestrials visited Earth in the remote past. In his ground breaking book Chariots of the Gods, Erich von Däniken brought forth a revolutionary theory: Extraterrestrials visited Earth thousands of years ago."

"They left clues behind in the form of mysterious, enigmatic monuments, curious artifacts, misunderstood technologies, and especially stunning descriptions of flying machines and other curiosities in ancient texts, holy scriptures and tales of mythology. What really happened in the past?"

What really did happen in the past? Conceive of humans as being as clever and industrious as we are today, and no extraterrestrials are needed.

"Questions pertaining to humanity's origins and our uniqueness concern each and every one of us over and over again. Secrets of this world hold the answers. The world is full of mysteries: the pyramids at Giza, Egypt, Stonehenge in England, or the lines of Nazca, Peru."

"... these mysteries become some of the greatest uninvestigated areas which remain unsolved for our youth and coming generations."--
[\[http://www.legendarytimes.com/\]](http://www.legendarytimes.com/)

I do not buy any of this, and fail to see the "message behind those mysteries." The "mysteries" are all the same stuff anyway. Writers: Erich von Däniken, David Childress, Peter Fiebag, Robert Bauval, Ulrich Dopatka, Luc Bürgin, Giorgio Tsoukalos.

== Supernova ==

D. S. Allan and J. B. Delair *Cataclysm: Compelling Evidence of a Cosmic Catastrophe in 9500 BC* (1997). Quotes from the website follow.

[The book is about] *"... how this Golden Age of peaceful conditions and equable climates ended traumatically in a tremendous catastrophe about 11,500 years ago. This was part of a cataclysm which disturbed the whole solar system, destroyed at least one sizable planet and its satellite, and also severely devastated Mars and Earth."*

It was all too cold 11,500 years ago (9500 BC) for an "equable climate," although the ice had started melting 2000 years earlier. But then it got cold and dark, and Earth didn't warm up until after 9000 BC. No planets were destroyed. The asteroid belt dates from long before humans. But there is more.

"Among the fundamental geophysical effects experienced by Earth were a massive fracturing of the crust, a realignment of Earth's axis, elevation of new mountains, and widespread rearrangement of land and sea."

"These changes were accompanied by an appalling global conflagration, a gigantic flood, and what has been described as 'collapsed sky' conditions. A bombardment by debris from the disintegrated satellite of the destroyed planet added to the worldwide chaos."

"Much of Earth's animal and plant life was annihilated by these frightful events. Some havens and refuges did exist, offering shelter to various faunal and floral species from flood or fire -- then to have to endure the appalling conditions which followed... ."

"The possible origins of this terrible calamity are considered in some detail, the authors concluding that, after dismissing comets, asteroids and giant meteors, the most likely candidate is a supernova explosion which, on the astronomical scale of things, occurred uncomfortably close to our solar system relatively recently." -- See amazon.com.

I'm glad to see someone "dismissing comets, asteroids and giant meteors." The problem here as with most other theories is that it assumed that all the geological upheavals happened over a short time period. The authors thus select another ephemeral cause. A supernova in current parlance is a bombardment by high-energy protons. It is not going to split the Earth's crust and raise mountains. They will not even penetrate rocks. I also find the geological information at odds both with accepted dogma and with common sense. But there is much more and the collected information is interesting. They start the "Ice Age" in 9,500 BC and end in 5,500 BC. The previous Ice Ages extended much further into the past, and were probably the result of a larger orbit than we currently experience.

Interestingly, most of the conditions mentioned above are dealt with in the paper by Richard Firestone, William Topping, and 23 additional authors, "Evidence for an extraterrestrial impact 12,900 years ago that contributed to the megafaunal

extinctions and the Younger Dryas cooling," in 2007. This is described in the chapter "Event of the Younger Dryas."

--== Orion's belt ==--

Robert Bauval and Adrian Gilbert *The Orion Mystery; Unlocking the Secrets of the Pyramids* (1994).

"Since 1979 when he first became interested in the Star Religion of the Egyptians, Robert Bauval has been researching the secrets of the pyramids. Almost by accident he stumbled upon the central mystery of the Egyptian religion, their preoccupation with the constellation of Orion as their hoped-for afterlife destiny."

"At first tentatively and then with growing conviction he presented his findings to a mostly hostile establishment that the major pyramids of the IVth Dynasty were built to represent the stars of this afterworld."

"This, at first sight bizarre, theory he was able to back up with ancient texts, ceiling paintings, star-maps and other data that when taken together makes up an extraordinarily convincing case. The question then becomes not whether what he had discovered is true but rather why had no one noticed these things before?" -- See Amazon.com.

The following is additional comment from Adrian Gilbert's site:

"The important role of the Great Pyramid of Khufu in this stellar religion of the pharaohs was more than hinted at by the discovery in 1966 by the astronomer Virginia Trimble that a shaft from the "Kings Chamber" was angled in such a way that it aligned perfectly with the culmination, that is to say the point exactly on the north-south meridian that, at the time the pyramids were built was daily crossed by the Belt of Orion."

"As it was already known that a similar shaft on the northern side of the Kings Chamber aligned with the then North Star: Thuban in Draco, such alignments seemed to be a deliberate piece of astro-architectural engineering."

Others have noted that Orion is not mentioned once in Egyptian antiquity. I have already commented on how the contemporary confusion of *Osiris* and *Orion* continues to be widely accepted, even though it has no basis. The book

additionally misidentifies *Sothis* with the star *Sirius* when it is as likely to represent Venus, that is, Isis. The Greek text of the *Canopus Decree* of 239 BC makes this very clear. The *Canopus Decree* is discussed elsewhere in this text. Other comments contra the "Orion" book are found in an endnote to the chapter "Noah's Flood."

To base a whole book on the alignment of a single ventilation shaft is the wildest of speculation. These "alignments" are additionally not correct, since the sky has changed since 2600 BC. As I have pointed out, any retrocalculation before 685 BC will be incorrect. But more importantly, the Egyptians had almost no interest at all in the stars (the circumpolar stars excepted), as others have noted. And last, the stars in the belt of Orion do not match the plan-view of the Giza pyramids.

== Binary star ==

Alfred de Grazia and Earl R. Milton *Solaria Binaria* (1984), in the "Quantavolution" series of papers and books (Internet).

"An astronomer and astro-physicist join to perfect an elegantly coherent and logical theory, backed by physical, psychological, and mythological studies, of the origins and history of the solar system with Jupiter as the remnant of the Uranian binary partner of Sol."--
[\[http://quantavolution.org/\]](http://quantavolution.org/)

The theory is based on the concept of our Solar System being the remnant of a binary star system. Thus a plasma connection between the Sun and Jupiter is responsible for the creation of the inner planets. The theory suffers from an unwillingness to allow for the absolutely enormous time scale required for the energy transfer under plasma conditions, and then flips planet axes, changes rotational momentum, and initiates orbits at will. It might work, given another few billion years, but not with a foreshortened time scale as required by de Grazia.

De Grazia, however, is a prolific writer and his site is well worth looking at because it includes a dozen other books on topics closer to what has been established or held as true by other authors on catastrophism.

== Mars-Earth Wars ==

Donald W. Patten and Samuel R. Windsor *The Mars-Earth Wars* (1996). The authors are physical scientist and engineers, making their theories a little more solid. The authors are sincerely enamored of the "dirty snowball" theory of comets, however:

"The surface of Mars and its two satellites provides ample evidence supporting recent catastrophism in the Solar System. For example, the energy and momentum exchanges for the transition of the orbit of Mars from the catastrophic era to the modern era are provided in this volume. Back tracking the orbits of Venus, the Moon and Mars to the catastrophic year 701 B.C.E. all calculate well, which is a confirmation of this model of catastrophism."

"This new model of cosmology accepts the evidence of planetary catastrophes surrounding us. It is a model of recent orbit changes among Venus, the Earth and Mars. While not an 'original thought,' the claim is that a reorganization occurred within the cultural memory of numerous groups of the Earth's inhabitants, who recorded their experiences."--
[\[http://www.creationism.org/patten/PattenMarsEarthWars/index.htm\]](http://www.creationism.org/patten/PattenMarsEarthWars/index.htm)

Don't let the domain name scare you, this is a reasonably well-written piece about the intersection of the orbit of Earth and Mars up to the 8th century BC. But the backtracking through well-mannered calculations does not constitute a confirmation. It offers a single and what I think is a rather simple solution, much too rigid and invariant in its mechanics, of the near-contacts with Mars during this time period, extending back to Mars being hit by some (watery) asteroid. It fails to give an account of any previous celestial history, or suggest a closure.

A magnetic field is required for Mars (which does not exist), which alternately topples the axis of Earth (and Mars) to assume a "least interactive position" near 22.5 degrees with respect to their plane of rotation about the Sun. But, as I have pointed out in the chapter "The Hour of Phaethon" the Earth's 23.5-degree inclination was not achieved until 685 BC, and at a time when Mars was about as far from Earth as it could possibly be.

Although momentum and energy equations are carried out to many decimal places, the difference in orbital inclination to the equator of the Sun is not taken into account. Patten and Windsor hold that the orbits of Earth and Mars were coplanar (which is correct). Some of the momentum seems to be transferred to the outer planets without any plausible mechanical connection over very long

distances, and without explaining how gravitational interaction would furnish the connection.

I disagree also with their selection of 701 BC as the date for the terminal event of Mars, which enlarged the Earth's orbit. There is just too much evidence that this happened in 747 BC, from calendar considerations -- such as the start of the Era of Nabonassar and the start of the Olmec Long Count.

A major objection is that Patten and Windsor have Mars pass between Earth and the Moon in order to increase the orbit of Earth and reduce the orbit of the Moon -- both by gravitational attraction. It also forces them to have Mars pass significantly closer to Earth; the evidence of Hesiod's *The Shield of Hercules* is used in partial support of this. The possibility of a "shove" instead of a "tug" is not considered, probably because much of the plasma theory as applied to planets was still undeveloped at the time of their initial authorship. Mars could have "shoved" the Earth with an electrical field thrust -- a repulsive force -- from much greater distances. Even though Mars would not have had a large plasmasphere, it still would have had a tail, an electrical shadow, on the side away from the Sun. The intersection of this with the plasmasphere of the Earth would have sufficed to provide the shock.

Despite my reservations, I found *The Mars-Earth Wars* to be interesting and I have used it as a resource in my own analysis. Patten and Windsor agree that there was no precession of the equinox before 701 BC, but for different reasons from mine (I use before 747 BC), and also failed to recognize the 15-day offset in the calendar in 685 BC. We agree on periodic flybys of Mars, but use a different interval from my selection (I follow the suggestion by Velikovsky, which can be verified from Mesoamerican sources). Lastly, I adopted Patten and Windsor's value for the synodic period of Mars, and managed to verify it through rather arcane Mesoamerican calendrical measures.

== Ackerman's Firmament ==

John Ackerman ("angiras") *Firmament: Recent Catastrophic History of the Earth* (1996) and *Chaos: A New Solar System Paradigm* (2000) establishes the repeated meetings of Earth and Mars (and Venus) primarily from Vedic sources. Ackerman is a physicist, says he, who talks plasma without a single concepts of what it really is.

"Prior to 4000 B.C. there existed only two terrestrial planets, what I call priori-Mars and the Earth. That is, Mercury and proto-Venus were not present in the solar system. Priori-Mars, the more ancient of the two by some 800 million years, was in an orbit similar to that of Venus today. It had a thick atmosphere, lots of surface water, rain, and a myriad of life-forms similar to those found on Earth. The entire planet was covered with vegetation."

My estimate of the age of Mars and Earth is exactly the reverse, as I have pointed out in the appendix "Notes on Chronology." If Mars had been subjected to 30,000 years of an electrical arc from Saturn impinging on its northern hemisphere, all life-forms (if there were any) would have been burned to a crisp and obliterated. But that's just *my* opinion.

"One of the most profound ideas suggested by the Velikovsky/Ackerman (V/A) scenario is an understanding of how a higher power may have only recently regenerated the Earth to enable its population by billions of human beings. ... The V/A scenario makes it possible for us to understand how major changes in a solar system were activated by small physical actions leveraged by a level of intelligence far beyond our own."

The tip-offs are "a higher power" and the "level of intelligence far beyond our own." I do not see the need for any of this. Ackerman eventually proposes that Earth is populated by Martian life. His third book reveals him as a dyed-in-the-wool uniformitarian and Christian fundamentalist with Rapture leanings. He also largely follows Sitchin, combining it with ideas from Velikovsky.

"The Velikovsky/Ackerman scenario, derived from ancient myth, involved two periods. The first was very short, lasting some fifty years, but was the one in which most fauna on Earth were destroyed. These were the proto-Venus encounters."

"It passed close to the Earth on two occasions, the first when it was still an earth-sized ball of flame. It scorched North Africa and the Middle East, forming the Sahara desert, and left a path of destruction that can still be seen today in satellite images. These two encounters overturned the lithosphere of the Earth causing tidal waves to sweep across entire continents killing most animals and beings."

"The second part of the Vedic period involved the interactions of what I call priori-Mars with the Earth. These were not transient in nature, but

involved the capture of the more diminutive planet in geosynchronous orbit around the Earth for fifteen years and then its release into a solar orbit for another fifteen."

"This process was repeated one hundred times over 3,000 years, and the associated events on both planets are detailed in Firmament."--
[\[http://www.firmament-chaos.com\]](http://www.firmament-chaos.com)

Ackerman has Mars stand over the Himalayas for 15 years at a time, thus raising the mountains to great heights. The iron core of Mars leaks out of the Valles Marineris, which is thought to be a giant crack in the surface of Mars. The iron core bundles up, and starts revolving about the Sun independently, eventually to enter Mars again at the end of the 15-year period. At the very last instance of this repeating cycle it fails to return, and now circles the Sun as the planet Mercury -- magnetic, dense, and smaller than Mars. This supposed scenario requires a magnetic field for Mars. Another feature is long tubes of lava which extend from Mars towards Earth.

During these many visits all the Martian oceans and vegetation leak out and are cast onto Earth.

What is amazing is that the detailed information, presented over three books, forms a close fit to what I think is a completely unjustified cosmology. It should be a warning for any other neo-catastrophist who attempts to put all of mythology together into a singular cohesive system: It can be done, but means no more than filling in a crossword puzzle with random words.

Ackerman, like everyone else who has looked at the physical nature of Mars, including any number of mythologists and creators of alternative cosmologies, holds the large bulges on the northern hemisphere to be volcanoes. A few of the Saturnians of Thunderbolts.info have properly identified these as fulgamite lightning blisters. As volcanoes they are hundreds of times the volume of anything similar on Earth and even three times higher than the Earth's Himalayas mountains. None show any evidence of lava flow. Very strange volcanoes for a planet of only 1/10th the mass of Earth.

I should also note that Ackerman might very well be correct in pinpointing the "face on Mars" (as a Griffin or as Horus) as well as other elements of Egyptian funeral ceremonies -- from the earliest sightings of Mars, rather than its destructive close passes in the 8th and 7th centuries BC.

== Clube and Napier's Snake ==

The Cosmic Serpent (1982) by Victor Clube and Bill Napier is a slipshod and unconvincing book which attempts to suggest a basis for ancient catastrophes in supposed meteors (or comet) strikes. Clube and Napier are astronomers, but show an incredible ineptitude when it comes to antiquity, mythology, and perhaps especially when it comes to astronomy. *The Cosmic Serpent* deserves extensive comments, because it is held in high regard by many people, perhaps because it "looks so scientific." An expanded version of this review may be found at [\[Contrary Books\]](#).

Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()
units: million == 1,000,000; billion == 1,000,000,000;
AU == 93,000,000 miles.



Appendix I: The Canopus Decree.

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[\[Venus Rising\]](#) [\[Sirius Rising\]](#) [\[Implications\]](#) [\[Further notes\]](#) [\[Endnotes\]](#)

The *Canopus Decree* was found engraved on a block of stone, in two languages (and in three scripts), at Tanis in the delta of Egypt, dating to the year 239 BC. The *Canopus Decree* was introduced by the Greek pharaoh Ptolemy III, even though it reads as if mandated by the priests. It records an order to add one day every four years to the civil calendar, but the decree was never implemented.

The Egyptians at that time used a civil calendar of 365 days -- composed of 12 months of 30 days with 5 days added at the end. In addition, an observational lunar calendar was kept, alternating 29 and 30 days (averaging 29.5 days, the synodic period of the Moon), which was intercalated periodically, since it ran 11 days short of the solar year. A third seasonal calendar was also kept, starting sometime in July or August with the inundation, or expected inundation, of the Nile.

The Canopus Decree

The *Canopus Decree* of 239 BC first introduces a new feast day honoring the pharaoh, then states when the New Year is celebrated, and that the rising of "Sothis" moves one day every four years.

"At present it occurs in this 9th year [of the reign of the pharaoh Ptolemy III] on the first day of Payni, in which month is celebrated the festival of New Year... . But as the case will occur, that the rise of Sothis advances to another day in every 4 years, the day of the celebration of this feast, shall not pass along but it shall be celebrated on first day of Payni and the feast shall be celebrated as in the ninth year."

The decree then states that one day will be added to the civil calendar every four years:

"But that these feast days shall be celebrated in definite seasons for them to keep for ever, and after the plan of the heaven established on this day and that the case shall not occur, that all the Egyptian festivals, now celebrated in winter, shall not be celebrated some time or other in summer, on account of the precession of the rising of the Divine Sothis by one day in the course of 4 years, and other festivals celebrated in the summer, in this country, shall not be celebrated in winter, as has occasionally occurred in past times, therefore it shall be, that the year of 360 days and the 5 days added to their end, so one day as feast of Benevolent Gods [the pharaoh and family] be from this day after every 4 years added to the 5 epagomenae before the New Year, whereby all men shall learn, that what was a little defective in the order as regards the seasons and the year, as also the opinions which are contained in the rules of the learned on the heavenly orbits, are now corrected and improved by the Benevolent Gods."

[\[note 1\]](#)

"Sothis" in this translation (from the Egyptian text) is used both for the planet Venus as well as the star Sirius. "Sothis" means "brilliant" or "blazing," and could be applied to Sirius as well as Venus. Venus at this time no longer had a visible tail. The Greek text clearly reads "the star of Isis" for "Sothis." It has been suggested that this use of "Sothis" refers to Venus, especially since the Egyptian text reads "the divine Sothis." But the Greek text was primary, since the decree was composed by the pharaoh's staff, who were Greek. The Alexandrian Greeks never seriously learned hieroglyphics. I doubt, anyway, that Venus was meant.

Velikovsky states that Pliny identifies "the star of Sothis" as Venus. The identification of the star Sirius as "the star of Isis" is an equation found already in the Persian *Zend-Avesta* of the seventh century BC. References to Sothis occur in the earliest Egyptian funeral texts, dating back to 2345 BC. What relationship does Sirius, a star, have with Venus, a planet?

The misidentification of "Sothis" with the star Sirius, which many archaeologists and historians have made, when it could equally refer to Venus, should be apparent from the context of the text of the decree. Venus moves one day in its heliacal rising every four years. Sirius does not move "one day every four years." Sirius is a fixed star and does not move.

On the other hand, seen from the vantage point of the Egyptian 365-day calendar, Venus did not move in the calendar. Sirius moved a day every four

years, as did all the other stars, and even the solstices and the equinoxes. They moved, that is, in the 365-day calendar.

Sothic Dating

In AD 1904 Eduard Meyer of the Berlin School of Egyptology devised a theory of Egyptian chronology based on the 360-plus-5-day Egyptian calendar and the star Sirius. Meyer proposed that the *Canopus Decree* spoke solely to Sirius, the Dog Star, and proposed that the Canopus Decree directed the use of the heliacal rising of Sirius as a New Year day, abandoning the practice of a short 365-day year which slipped backwards against the seasons.

This was correct, but Meyer further proposed that in the past the Egyptians had used a 365-day civil calendar which moved a quarter of a day every year with respect to the previous year, so that after 1460 years it would be back in the season and on the day (and seen against the same background of stars) that it started to drift from (if the year also had remained at 365.24 days). The 1460-year period became the "great year" of the Sothic cycle. Meyer's theory of Sothic dating depended on off-hand comments written 500 and 600 years later than the Canopus Decree.

I should point out that there was a notion of a "great year" current in Roman times. But no one seems to know what a "great year" was, how long it was, or where it came from. My guess is that the concept of a "great year" dates from the astronomical year 684 BC when all the planets were in the sky at the date of the vernal equinox, and had nothing to do with Meyer's Sothic cycle.

Sirius Rising

"... a veritable linch-pin of his Sothic theory was the combined classical evidence of Theon of Alexandria (5th century AD), and the Roman author, Censorinus (3rd century AD)."

"Meyer believed that the development of a significant relationship between the heliacal rising of Sirius, and the historical dates, had become possible due to a statement made by Censorinus (in AD 238) that New Year's Day for the Egyptians in circa 139 AD had fallen on the 21st of July. It was on that day that the bright star Sothis was supposed to have made its annual appearance."

-- Damien F. Mackey "The Sothic Star Theory of the Egyptian Calendar" (1995) originally at specialtyinterests.net/sothic_star.html.

The "evidence" of Theon of Alexandria is a remark that a "great year" ends in AD 27. In fact, an ephemeris will show that on January 23 of AD 27, Julian, a "Great Year" is signaled by having all the planets appear in the sky at the same time. This happens frequently, but it was not the "great year" Meyer had in mind. Other researchers have claimed that a "great year" is simply a lunar calendar year of 13 months -- the observational lunar calendar with one additional intercalated month. But for Meyer the mention of a "great year" suggested the completion of a 1460-year period. Meyer thought that any mention in Egyptian records of the remote past of "Sothis rising" could be used to accurately date events.

Censorinus does mention a period of 1460 years, but does not relate it to the annual appearance of the star Sirius. Instead he ties it to a supposed "Supreme Year" of Aristotle, when all the planets return to their starting locations in the sky. This is said to signal a major catastrophe on Earth.

Some have identified the date in question in 239 BC as July 17-19 Gregorian, and others are certain that Sirius should have risen heliacally on July 21, Julian.

Sirius is the brightest star in the sky, but it is unlikely that the helical rising of Sirius, or, for that matter, any other star, could be used as a clear marker of the start of a calendar. During heliacal rising Sirius only achieves a magnitude of 4.5 at the horizon -- a very dim star at best. It is much brighter a few days (and degrees of elevation) later. Once it is some ten degrees away from the horizon, it reaches its magnitude of 1.9 -- shining then as the brightest star in the sky, with only Jupiter and Venus being brighter yet.

The Egyptians were also hindered from seeing the east horizon from the Nile valley by the highlands bordering the river. "Heliacal rising" is not well defined as a result, and never easily detected. The Egyptians, in fact, never took much interest in rising stars, although they charted three-dozen groups of stars for the purpose of timekeeping during the night.

The Sothic Dating theory has been abandoned in practice, for it simply makes no sense as a calendar for a people, but not before finding its way into many textbooks where it has become solidly ensconced as indisputable fact. Meyer's attitude in 1904 is a remnant of the medieval European confidence in "the wisdom of the ancients." Meanwhile, it has made a mess of Egyptian dating.

Victor Clube and Bill Napier write, in *The Cosmic Serpent* (1982):

[p 228] *"... although archaeologists have come to depend totally on the validity of the [Sothic] cycle, it remains to this day a very disturbing fact that there is no known reference to the Sothic cycle in Egyptian texts."*

Except, of course, for the occasional reference to the rising of Sothis. Peter James writes, at <http://www.centuries.co.uk>:

"The Sothic theory depends on a number of assumptions which do not stand up to close scrutiny. Since our first published criticisms (James, et alii, 1987, 71-74) there has been a sea-change in opinion as to the reliability of this astronomical dating."

"As there are no longer any reliable astronomical fixes, Egyptologists have, by and large, abandoned their reliance on Sothic dating - although they have been rather slow in admitting it in public."

I would suggest that Sothic dating never existed. The Egyptian 365-day calendar, used at a time when the year was 365.24 days long, was only in effect since 747 BC, or perhaps since 685 BC, or some other date. It was designed to keep the risings and settings of Venus perfectly in tune with the religious calendar, even though all other celestial events would slip into the future. The 365-day calendar included 12 "months" of 30 days, which had nothing to do with the period of the moon, and five days which were not in any month. The basis of its use was in the previous calendar, in effect before 747 BC, when the year was 360 days and the month was 30 days long. The rising of Venus on its 8-year cycle, and the yearly rising of Sirius, and all other stars, and even the equinox and solstice dates, kept perfectly in sync with the 360-day calendar.

The Egyptians, and apparently other people of the Eastern Mediterranean, had long ago developed a concept that every God and every being was represented by a star. The star of Venus was Sirius. Both Venus and Sirius were the most brilliant objects in the sky. Sirius was also important because it traveled in an arc across the southern skies, framing the Nile which flows from the center of the arc. Before 685 BC, the travel of Sirius along this arc would have started almost directly east and ended almost directly west. It was the major marker for navigation of the Mediterranean -- easy to see and easy to use.

After 685 BC Sirius rose in the southeast instead, and rose late in July. Its appearance in the mornings before sunrise signaled the flood of the Nile, which

started sometime in late July or early August. Considering that the start of the inundation of the Nile was the major event of the Egyptian agricultural calendar, the rising of Sirius in late July would be a significant marker date for a calendar -- at least, for an agricultural calendar.

Sirius would rise about July 17 (Gregorian), first seen along the eastern horizon, and rise earlier each night thereafter (seen higher in the sky at nightfall). By December 11 Sirius would rise in the east a few hours after sunset and reach the western horizon just as the Sun was rising in the east. Over the next five months Sirius would be seen progressively further west in the sky at nightfall and set in the west earlier. [\[note 2\]](#)

Venus rising

Venus is seen above the eastern horizon before sunrise as the brightest object in the sky for a period of about 8 to 9 months -- five times out of every eight Earth years (and similarly five times in the west). At first Venus becomes visible just before sunrise. Over the following weeks it is seen earlier and higher up in the sky, but never more than about 40 degrees from the horizon. After climbing in the sky for 4 months, it would start to appear lower, to eventually disappear behind the rising Sun, and then (after 50 days) appear in the west for about 9 months, following the same sequence of initially appearing at the horizon, and then appearing higher in the sky every night. After disappearing in front of the setting Sun, it would reappear in the east again after about 8 days. The five periods of eastern and western visibility rotate through the year, only to repeat exactly at the end of 8 years, but displaced by two days on the seasonal calendar. That's how things happen today. [\[note 3\]](#)

Before 685 BC Venus had looked much brighter on its heliacal rising than Sirius ever would (but no longer in 239 BC), because of the spreading plasma tail which was directed towards Earth as Venus was passing in front of the Sun, making it probably half the size of the Moon. Before 685 BC the rising of Venus could not have been missed. It would have been much more brilliant than any star at the horizon. Using a Venus calendar (which a number of other nations also used) made sense. Every 8 years Venus would rise in the east against a backdrop of the same stars as 8 years earlier, but two days earlier in a seasonal calendar.



[*Image: Heliacal rising of Venus in antiquity. Image in public domain.*]

As it moved past the Sun, the brilliant tail would swing from pointing directly toward Earth (or parallel to the horizon) to point directly up -- the "going up of Sothis," as Egyptian texts describe a phenomenon which we tend to interpret as "heliacal rising," and using the feminine ending for Sothis ("spd.t") to signify Isis, that is, Venus. Over the following days the tail would grow in length and become visible earlier before sunrise while Venus rose higher in the sky. If the ancients needed a spectacular periodic sign for the regulation of the year, which would they select? It is true that at the time of the Canopus Decree the tail had possibly not been seen since 685 BC and certainly Venus was much reduced in brilliance from the remote past. Perhaps it was time for a change.

Velikovsky offered the suggestion (I think correctly so) that the first reading of "Sothis" is indeed "Venus," but that later references are to Sirius, and suggested that the priests were attempting to nail the calendar to the rising of Sirius.

The earlier 360-day calendar was most likely related to the Venus cycles, for before 747 BC the synodic period of Venus had been 600 days. That means that the helical rising of Venus would fall on the same days of the seasons, and, although the rising and setting dates would vary, every 8 years the same cycle would repeat with the 360-day calendar. This was true even though Venus may still have been on an elliptical orbit, as was the Earth, because ellipticity does not affect the orbital period. Before 747 BC, the New Year's Day of the 360-day calendar might have been initiated, not by observation of the equinox, but by the helical rising of Venus -- on an 8-year cycle. The count of days, or, more likely, the count of 12 months of 30 days, would bring New Year's Day around again.

Already in the first dynasty, Venus was called "Opener of the year" and "Lady of the new year." It could be suggested that at that time Earth and Venus would have identical synodic periods. Venus had always been used as a calendar marker.

Implications

It should also be obvious that it really does not matter. It makes no difference if the original calendar was timed to the helical rising of Venus or not. In either case the Egyptians were burdened with a shifting administrative (civil and religious) calendar -- a calendar which did not account for leap years. The Zapotecs, Inca, and Maya used the same Venus calendar, but the Zapotecs and Inca added a leap day every four years. The Maya, like the Egyptians, did not. Julius Caesar added a leap day to the Roman calendar in 40 BC.

By the way, as Velikovsky points out, in later years the pharaohs were required, before accession, to swear not to change the calendar or add a day, in a ceremony performed, significantly, in the temple of Isis (Venus). This makes it look as if the calendar reform was rejected by the caucus of priests and perhaps especially those outside of the delta. It was not a matter of calendars; it was about disturbing the sacred feast days. Historians seem to forget the importance of religious celebrations -- the very heart of calendars.

The imposition of the Julian calendar by Augustus in 23 BC resolved the issue, and in effect implemented the *Canopus Decree*. With the Julian calendar the year in Egypt started on August 29 (Augustus's birthday). This date was close enough to the start of the less formal agricultural calendar, and close to the intent of the *Canopus Decree* in 239 BC, to satisfy nearly everyone. Upper Egypt, outside of the control of the Romans of the delta, retained the Venus calendar for an additional six hundred years.

The old Roman calendar had run into the same slippage because it was also based on an exact count of days, and was additionally altered by the Roman Senate for tax collection purposes. Caesar resolved the discrepancies in 40 BC by moving the starting date back two months (supposedly to the date of the culmination or helical setting of Sirius), and introducing a leap day to be added every four years. When Rome took over Egypt, Augustus was faced in 23 BC with the same problem with the Egyptian calendar, which had slipped an additional 54 days since the *Canopus Decree* had been rejected in 239 BC. The year now started at the beginning of May. The selection of August 29 as the starting date, lopped a full four months off the Egyptian calendar in the transition year. What Julius Caesar had done, Augustus could do also.

Further Notes

If we can use the year 239 BC with an ephemeris, without making the adjustment for the error of Eastern Mediterranean chronology, then in 239 BC at the vernal equinox, Venus rose with the Sun. Indeed, the year 239 BC would have completed a "Great Sothic Year" as devised by Eduard Meyer -- if only Venus were to be understood as representing Sothis, and a "Great Year" as representing 1460 solar years. It was an auspicious year to request a change in the calendar.

But it was not so. The year 239 BC in Eastern Mediterranean chronology is actually 244 BC (-243 astronomical), and nothing of the sort happened. Instead, Venus set with the Sun at or close to the solstice. It would reappear in the west, just after sunset, 90 days later, in time with the autumnal equinox.

The decree was released on 7 Apellaios, a Macedonian name for March, says the translator S. Birch, in *Records of the Past* (1876), which he further identifies as 17 March. The phrase "after the plan of the heaven established on this day," says as much. Velikovsky read that phrase in the *Canopus Decree* as meaning, "the change in the skies since 747 BC," but I don't think so.

It might mean, specifically, and as developed in the speculation below, that only in this year -- 239 BC, actually 244 BC -- would New Year's day fall on a significant day of the calendar which would allow an easy change. The significant day would be the autumnal equinox, the day when the New Year had been celebrated in remote antiquity.

The suggestion, from the text of the *Canopus Decree*, that New Year had previously fallen in winter in the past needs also to be considered. This could only have happened after 747 BC, if the Egyptians had failed to add 5 days to the civil calendar, and had retained the 360-day calendar. This leads to a completely different analysis of the intent of the *Canopus Decree*.

We could, for example, assume that the Egyptians had stubbornly continued to use a 360-day calendar after 747 BC, losing $(747 - 685) * 5.24 = 324.88$ days up to the time of the Assyrian occupation, or $(747 - 525) * 5.24 = 1163.28$ days up to the Persian occupation -- more than three years in the last case. For either case, this certainly would suggest that the feast days had shifted around the year, as the *Canopus Decree* claims -- "as has occasionally occurred in past times." I'm using uncorrected calendar years here because it does not matter to use these for this example.

It is, in fact, altogether typical of all people to not correct their calendars. Even in modern times, after AD 1582, many modern European nations refused to adopt the Gregorian calendar for up to 341 years (Greece, in 1923) -- much longer than the Egyptians had avoided an update. For the Egyptians the failure to amend the calendar would mean that the calendar fell behind 5.24 days every year, so that the calendar would rotate through a complete year every 70 years. Although that may have happened in the past (the statement in the *Canopus Decree* could be hyperbole), by 239 BC the Egyptians were apparently using a 365-day calendar (rather than a 360-day calendar), which only fell 1/4 day behind every year.

That means that at some time after 747 BC the five days were added, but not the last quarter day. It may have been the Assyrians who brought the extra five days during their occupation in circa 685 BC, or the Persians in 525 BC. The Egyptians, whose civil and religious calendar assigned significant feast days to every one of the 360 days, were stuck initially, and made the decision to honor the birthdays of the five primary Gods on the extra five days.

The month "Payni" is the 10th month of the year, part of our June and July (mid-June to mid-July). That places the end of the 12th month (and the end of the calendar year) in mid-September. This suggests that in the past (before 239 BC) the autumnal equinox was used as the start of the year. That is not unusual, for nearly every nation on Earth had celebrated the New Year at the autumnal equinox since 2349 BC. [\[note 4\]](#)

The *Canopus Decree* suggests celebrating the extra day on the first day of Payni (after the five days which follow the end of the 360-day year). The first day of Payni (since it would fall in mid-June) would likely be the summer solstice, June 15 plus 5 days -- and thus about 90 days had slipped since the calendar was correct at the time of the fall equinox.

Whatever the extent of the shift was after 747 BC, it seems likely that the Egyptian religious calendar added the extra five days, but not the quarter day, directly after 685 BC, so that the New Year was again celebrated at the fall equinox, which before 685 BC fell on September 6th, and after 685 fell on September 21st (see my previous text on this shift). It is possible, however, that the Egyptians celebrated New Year at the culmination of the Pleiades, as many other nations did, which would have fallen on the Gregorian equivalent day of September 8th before the summer of 685 BC, and on October 8th after 685 BC.

At any rate, counting from 685 BC, when I think a revised calendar was likely imposed by the Assyrians, and adjusted for the change in the autumnal equinox in 685 BC (in the opposite direction), the slipped days to 244 BC (the year of the Canopus Decree), is $(685 - 244) * .24 - 15 = 90.84$ days. This is very nearly equal to the assumed 90-day lag mentioned above, placing New Year's Day on or near the solstice, and is close to or equal to the actual number of days between the solstice and the fall equinox -- 92 days from June 21 to September 21.

The fact that the New Year's day was celebrated at the summer solstice in 239 BC (244 BC), and would continue to be if the leap day was added, is likely what was meant by "after the plan of the heaven established on this day." Although actually, what was probably meant was that the first month of the year would start in mid-September -- as it had always been -- even though the 5 or 6 adjusted days fell in mid-June, and New Year as a result was celebrated at that time. Note that the Guatemalan Chiapas also add the 5 extra days at an odd time of the calendar year, after their third 20-day month, with New Year at the winter solstice.

[\[note 5\]](#)

Endnotes

Note 1 --

S. Birch *Records of the Past*, Series 1, Vol.VIII, (1876) (text at http://nefertiti.iwebland.com/texts/canopus_decree.htm), translated from the hieroglyphic version.

[\[return to text\]](#)

Note 2 --

In 239 BC, July 17, Gregorian, is July 21, Julian.

Since 685 BC, and until AD 400 or 600, Sirius had appeared red, since it fell behind the last band of the Absu at a culmination of 43 degrees. However, on first rising Sirius would miss being placed behind this equatorial ring, and thus appear white, but also very dim. Before 685 BC it traveled well above the Absu, just below the equatorial. At that time it would have been the brightest star in the sky, and white.

[\[return to text\]](#)

Note 3 --

For example, in the period starting with the year 2001, the following sequence of eastern rising will happen. After 8 years Venus rises in the east 2 days earlier in the calendar. Westerly appearances are not listed.

date of eastern visibility of Venus			

year 0	2001 March 22	-	2002 January 11
year 1	2002 November 1	-	2003 August 19
year 2			
year 3	2004 June 8	-	2005 March 25
year 4			
year 5	2006 January 11	-	2006 October 28
year 6	2007 August 19	-	2008 June 9
year 7			
year 8	2009 March 20	-	2010 January 9

[\[return to text\]](#)

Note 4 --

On the order of God, after 1492 BC the Israelites moved the celebration of the start of the liturgical year from the fall equinox, as it had been under Egyptian rule (and where the start of the civil year remained), to the spring equinox, or rather to the first full moon after. The Babylonians followed suit after 747 or 685 BC.

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Note 5 --

Report on a talk by John Fermor, "A Revised Chronology for Egypt," given at "New Directions in Ancient History" Conference in London, September 1980, sponsored by the SIS, and quoted in *SIS Review* Vol. V Number 1 1980/81.

"He started from the proposition that in the 3rd century BC the Egyptians had a 365-day calendar although the natural year was 365¼ days. In 26 BC the Julian calendar of 365 1/4 days was introduced into Egypt but the Alexandrian calendar of 365 days remained in use. By AD 139 there was a discrepancy of 41 days between the Julian and Alexandrian calendars for the date of 1 Thot, the Egyptian New Year's Day. In 165 years, there had

been a shift of 1/4 day a year, as one would expect. On 1 Thot AD 139 the star Sirius rose heliacally; in 238 BC this event occurred on 1 Payni - a shift of 95 days in the Egyptian calendar in 377 years, again at the rate of 1/4 day a year. This correlation, Fermor argues, can be shown to hold good as far back as 521 BC, before which things become uncertain."

The calendar years are uncorrected for the 4-year discrepancy. so that Sirius did not rise on 1 Thot in AD 139.

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Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.

Special thanks to C Vitale for questioning the earlier text.



Appendix J: Expanding Earth.

\$Revision: 42.1 \$ (exp.php)

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[\[Questions\]](#) [\[Endnotes\]](#)

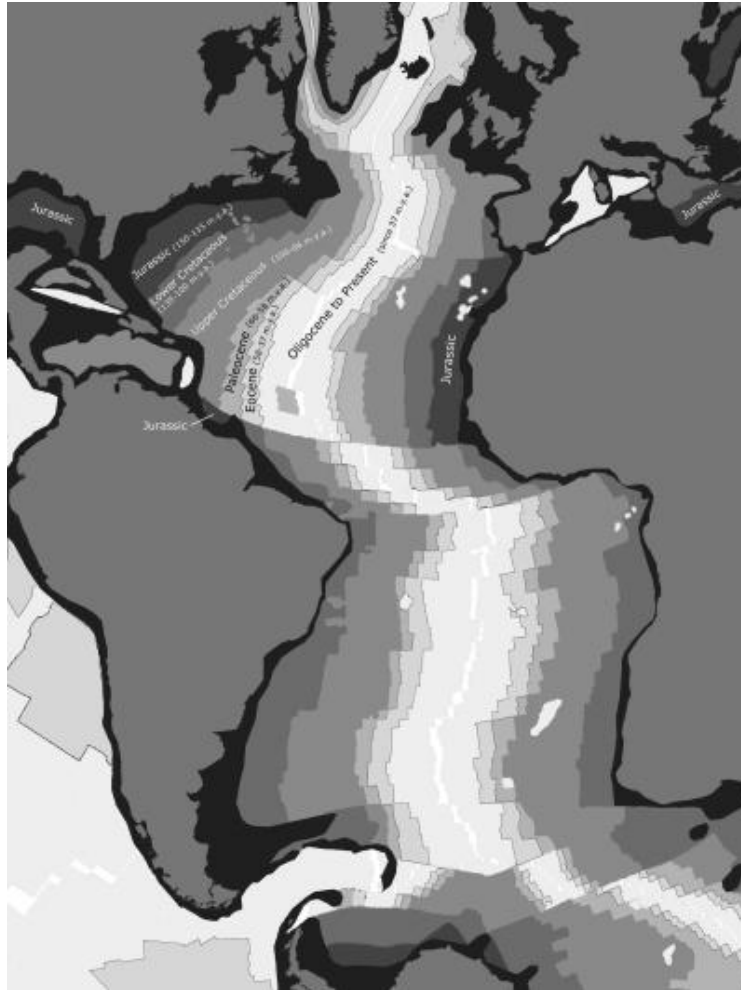
Pterodactyls

Ted Holden has expounded for years on the problems the early dinosaurs would have had walking and running, and most elegantly on the problems Pterodactyls with 30- and 50-foot wing spans would have had in lifting off the ground and flying. He offers no solution except to suggest that the force of gravity might have been lower in the age of the dinosaurs. Robert Bakker, a researcher and expert on dinosaurs, has proposed various bony ligaments which would lace the necks of the large dinosaurs to help hold up their heads. [\[note 1\]](#)

If gravity has changed since the age of the dinosaurs, it might have been due simply to the Earth expanding and becoming more massive. Expansion would increase gravity if the center of the Earth filled with new material. This is somewhat of a radical suggestion, since most people are not at all comfortable with the creation of matter.

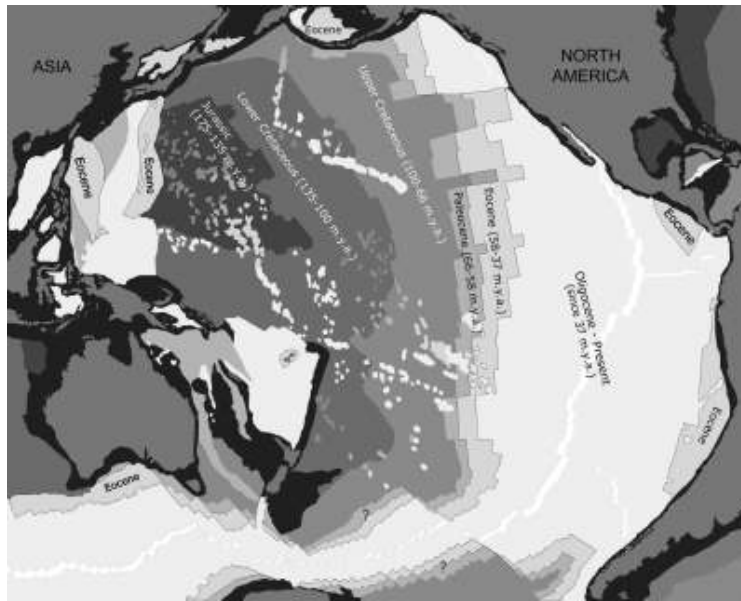
In the 1960s oceanography came up with some surprises. First of all, it was recognized that the ocean beds were not filled with miles and miles of sediment, as would be the case if the world's rivers had been carrying silt to the oceans for four billion years. Instead it was found that the ocean floors were geologically new.

Expansion



[Image: *Atlantic Floor Spreading. After Karl Luckert.*]

The second surprise was the discovery of the Atlantic ridges, a series of parallel ridges which run mostly north and south throughout the Atlantic. The ridges show a series of parallel magnetic reversals of the top layers of rock, matching east and west from approximately the center of the Atlantic. Further research has found the same in the Pacific and Indian oceans, although of a more complex pattern. Geological dates of the ridges also match from the center out. The oldest ocean beds are just east of China, with smaller stretches just off the North American east coast and in the South Caribbean. These regions date from 180 million years ago -- from the Jurassic era (200 to 150 mya), the second era after the end of the Permian and the era of the giant dinosaurs.



[Image: Pacific Floor Spreading. After Karl Luckert.]

It looked like the Earth had indeed been expanding, and in fact it looked like there were no oceans before the Jurassic. That means the original landmass, Pangea, the single landmass which had already been suggested as the parent to all of today's continents, must have covered all of the Earth at one time. The start of ocean floor spreading (as it is called) dates from after the first appearance of the giant dinosaurs during the Jurassic.

You can look at a globe and make some simple calculations. Subtracting the estimated average width of the Atlantic and Pacific from the current circumference of the Earth (25,000 miles, 40,000 km) gives an earlier circumference of about 12,500 miles (20,000 km). The Earth has roughly doubled in diameter.

Surface gravity is a function of the mass divided by the square of the radius of the Earth. The mass of the Earth, assuming no change in density for the new material, is a cubic function of the radius. Thus gravity is linearly proportional to the radius of the Earth. As Earth expanded, gravity increased linearly in proportion. [\[note 2\]](#)

Since the radius has doubled since the Jurassic, 200 million years ago, gravity has increased also by a factor of 2. The change in gravity is marginal over time spans of 10 or 20 million years (1 or 2 percent per million years), but certainly enough over 100 million years so that Bakker does not need to speculate about how rigid ligaments held up dinosaur necks, and Holden need not question the

50-foot wing spans of Pterodactyls. The really "giant" dinosaurs date to the Jurassic age, 200 million years ago, and the remaining "evolutionary data" fits: after each of the many extinctions, the large animals never returned in the same sizes -- gravity in each instance had increased significantly, and put the larger animals at a disadvantage. The first mammals of the later Tertiary period were also very large at first, and these disappear in turn. Plants went through a similar cycle, with only the climatically protected Sequoia as survivors. [\[note 3\]](#)

S. Warren Carey

S. Warren Carey in two books, *The Expanding Earth* (1976) and *Theories of the Earth and Universe* (1988), suggests that 200 million years ago (at the Jurassic) the Earth was only half its present diameter, and completely enclosed by Pangea, the single landmass which today has been torn to smaller pieces. Expansion of the Earth split Pangea, forming the current ocean basins in the process, which filled with water -- some as runoff of the shallow continental seas, most of it probably welling up from within the Earth. Ocean-bottom thermal vents and volcanoes spew out water and water vapor. The second book suggests that matter is being created in the center of the Earth.

Carey and his followers in fact suggest that the expansion is not linear (as implicit in my abbreviated formulation) but exponential -- that is, it is a function of the mass already accumulated. They say very little about gravity. Many of Carey's followers are not comfortable with his second book and are extremely reluctant to suggest the creation of new mass. The creating of mass does not contradict current physics, and is in fact a postulate of quantum theory. (Exception could seriously be taken with both of these statements.) But many people have serious philosophical problems with the creation of anything new out of nothing.

Before the Jurassic there were no oceans, only shallow seas located on the stretched-flat inland areas between mountain ranges. There may have been a southern ocean. This was also before the recent orogeny -- the set of mountains identified as the Alps, Himalayas, and the Rockies (the whole of the Cordilleras, which includes the Andes). Mountain ranges are clearly the result of a solid landmass crumpling as the radius of the substrate on which it rests increases. Mountains are thus hollow, and provide easy access to the surface for material welling up from the substrate. The large flat mid-continental basins are stretched areas, often with faults where the Earth shears (due to stretching of the landmass). The process of stretching landmasses and curling the edges

(mountain ranges) can only account for some of the expansion. At some point the original single continent would rip and the fault would widen and fill with new material from within the Earth. This clearly shows in a mapping of ages of the ocean crusts. The shapes of the continents are exactly what would be expected if the peel of an orange were to be forced onto a sphere of twice the original diameter. Wedge shaped areas would remain after the original peel started to crack.

Antarctica was originally attached to Northeast Asia (as fossils testify), and butted up against North America. Antarctica eventually was rotated and pushed to its southern polar location by the new ocean floors which welled up around it. Australia touched up against South America on one side (and marsupial mammals ended up in both continents) and Southeast Asia and India on the other. East Africa was up against India. North America was located against Europe on one side and Asia (with Antarctica still between) on the other, South America was against Africa. Europe had not tried to pull away from Africa yet. As you can see, this originally was a small globe.

Questions

Some questions remain. Is the Earth still expanding today? Even if this were so, it would be totally undetectable. Carey and others think expansion continues, at an increasing rate.

Did the expansion happen gradually or in spurts? Carey suggests a continuous exponential expansion. Exponential expansion would reduce earlier changes to less significance, that is, the expansion only became very noticeable after the Jurassic. Others have suggested, based on biological (evolutionary) considerations, that gravity may have increased in the period before the giant dinosaurs of the Jurassic and then have fallen again.

The bands of magnetic reversals detected in the east-west direction from the center of the Atlantic Ocean floor suggest sporadic expansions. The intensity of the reversed orientations are weaker compared to the normal orientation. It is possible that the reversals mark plasma contacts with Saturn, although the data for reversals of magnetic orientation are sporadic and do not seem periodic. The number of reversals increase in frequency about 35 million years ago (some 20 instances), and become much more frequent during the last million years. These last are recorded also in sedimentation layers in the Balkans, and thus may represent data not available for earlier periods as found only in molten rock.

Where did all that new material come from? It has been suggested that almost all of it was added as the fall of asteroids and comets, but an exponential expansion suggests an ongoing process more likely related to the mass already in existence (the volume of the Earth), rather than related to the surface area of the Earth. You might suspect, offhand, that the added mass came from Saturn as a transfer of protons. At any rate, it is an awful lot of additional mass. The mass of the Earth has increased seven-fold in the last 200 million years. This represents only a very small fraction of the mass of Saturn, somewhat around 1 percent. If the expansion were due to asteroids then the Earth would have been covered in miles-deep layers. [\[note 4\]](#)

Some researchers have agreed in concept with the idea of an expanding Earth, but not in scope. Some have suggested that only a 20 percent reduction in gravity would suffice to allow the giant dinosaurs and plants. But this does not match the additional circumference due to increased oceans, or the age of the ocean bottoms.

It might also be suggested that the Earth simply bloomed, that is, it became larger without gaining mass, like bread rising in an oven. But that would *decrease* gravity, not increase it.

Similarly, the plasma theorists suggest that gravity is a function of the electrical conditions of the Earth, and is perhaps affected by electrical fields exterior to the Earth. Again, this does not account for the dated ocean floors, the movement of continents, or the doubling of the Earth's diameter. It does, however, match my supposition that Earth became a planet of the Solar System, and thus affected by the electrical field of the Sun, after the Permian, 250 million years ago.

The landmasses of Earth and its ocean bottoms are distinctly different materials. De Grazia sums it up, with:

"The crust of Pangea was 'sial,' heavy in silicon and aluminum elements, as is the crust today. Its depth was uniform; at about 30 kilometers it developed, but very gradually, into heavier silicate magnesium mixtures ('sima')."

"... All the recent vulcanism, seismism, and crustal churning has added little to the sial, for the magma below is not provided with the materials for its manufacture."

"There is no evidence that the oceans have destroyed and buried continental material, or could have, since the sial and its sediments are lighter than the sima of the ocean floor."

"The fossil marine beds that are found upon the land today, even high up in the Himalayas, are once-flooded land-beds or they are Pangean shallow water formations. They are the relics of deluges, tides and certain risings visited upon the world by post-Pangean catastrophes. There are few fossil marine beds laying conformably upon plutonic or basaltic sima."

-- Alfred de Grazia *Chaos and Creation* (1983)

For 3.9 billion years the crust of the continents has been floating on the substrate. Then some 200 to 250 million years ago heavier material from within the Earth started to well up to fill cracks which had started to develop. It is the spreading ocean floors that have moved the continents.

We can recognize unfilled cracks today. One runs almost the whole length of Africa and on into Southwest Asia.

Endnotes

Note 1 --

Ted Holden at [\[http://www.bearfabrique.org\]](http://www.bearfabrique.org) and Robert Bakker *The Dinosaur Heresies* (1986).

[\[return to text\]](#)

Note 2 --

Gravity is expressed as $a = f (m / r^2)$

Mass is expressed as $m = f (r^3)$

Thus as the Earth gets larger, gravity increases because of the increased mass, but decreases because it takes us further from the center of the Earth:

$a = f (r^3 / r^2)$.

This reduces to $a = f (r)$

[\[return to text\]](#)

Note 3 --

There are suggestions also that gravity may have reduced initially during the time preceding the Jurassic, and then started to increase. This is mainly based on the rather compact proto-mammalian and proto-saurian animals of the earlier Permian period.

[\[return to text\]](#)

Note 4 --

If the diameter doubles, the mass will increase to 8-fold.

The earlier mass is thus:

$(1/8) * 6 * 10^{24} = 0.75 * 10^{24}$ [kg] where **$6 * 10^{24}$ [kg]** is the current mass.

The decrease in mass of Saturn (if Saturn was the source) is:

$5.25 / (568 + 5.25) = 0.0091$ -- about one percent.

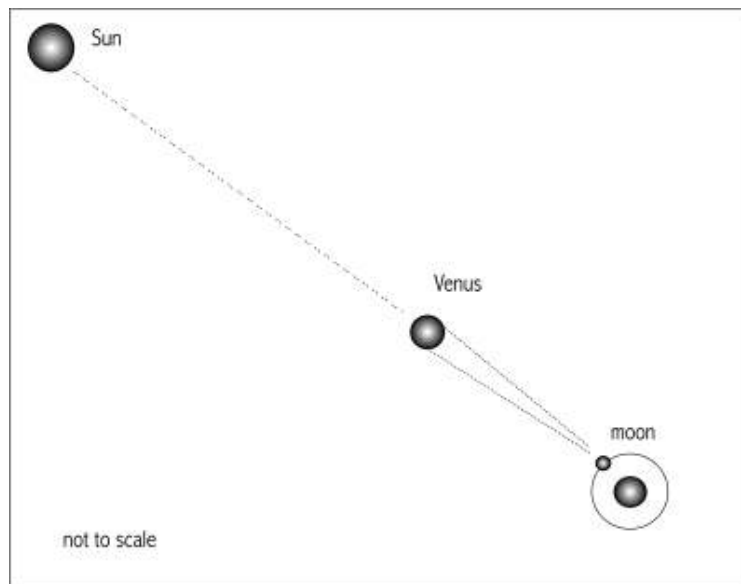
[\[return to text\]](#)



Appendix K: Venus and Epidemics.

\$Revision: 42.1 \$ (epi.php)

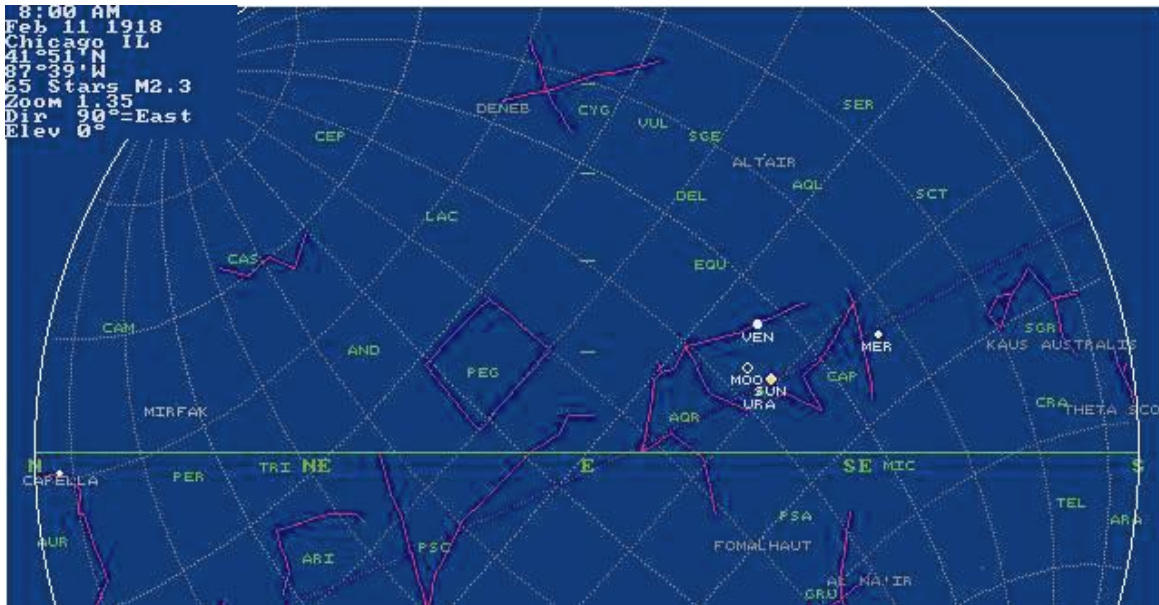
Content of this Appendix: [\[Spanish Flu\]](#) [\[Lockyer Observatory\]](#)
[\[Diseases from Space\]](#)



*[Image: Venus inferior conjunction with the new Moon intervening.
Illustration by J. Cook.]*

Spanish Flu of 1918

Venus has been implicated in the Spanish Flu epidemic of 1918 (the influenza pandemic). The suggestion is that the Sun, Venus, and Earth had been in line a month or two before the first, non-lethal, wave of the epidemic struck in the spring of the year. The second, very virulent, wave struck in late August and September, with a peak in late October.



[Image: Venus at Inferior Conjunction and the New Moon, February 11, 1918. From SkyGlobe 3.6.]

The mechanism would be the solar wind's protons, which are focused by the very long tail of Venus's plasmasphere. NASA has identified the tail of Venus as "stringy" -- clearly identifying it as a Birkeland plasma current in high dark mode. The protons are traveling in excess of 2 million miles per hour (3.2 million km per hr) on reaching Earth. Although they do not penetrate materials at that speed, they could damage cell structures and could cause changes in simpler forms, like viruses. As likely is that the increased inflow of particles changes the electrical characteristics of the upper atmosphere and allows a wider dispersion of viruses or bacteria.

Venus passes between Earth and the Sun frequently (five times every 8 years), but since the orbits are tilted, the planets seldom are in a direct line with the Sun. Additionally, although the plasmasphere tail (coma tail) of Venus is very long, it does not quite extend to Earth. However, it is possible for the Moon to fall into place in such a conjunction, and provide a remaining path to the circuit. Such conjunctions are less frequent, generally happening two or three times in a row, followed by an equal time span where this does not happen.

The geometry is not as simple as suggested in the text above. Under normal conditions the Sun's protons which travel along the edge of the plasmasphere tail of Venus toward Earth would be deflected by the Earth's magnetosphere. The Earth's plasmasphere probably extends 20 Earth diameters into the space toward

the Sun, (160,000 miles, 260,000 km). The Moon travels about 30 Earth diameters away from the Earth (250,000 miles, 400,000 km), and is likely to also have a plasmasphere "shadow" extending away from the Sun, toward Earth.

John M. Barry, in *The Great Influenza* (2004), suggests an unusual mutation of the influenza virus for the virulent second wave which struck in September and October of 1918. Barry suggests that the almost simultaneous appearance of the influenza in the United States can be accounted for by human contact, specifically by cross-country troop movements.

This is probably incorrect. Robert Fritzius presents data showing the appearance of the flu throughout the United States and part of Europe in the span of seven days. (<http://www.datasync.com/~rsf1/vel/iamds.htm>)

There was no inferior conjunction of Venus associated with the second wave which first appeared in September and October of 1918.

The next inferior conjunction after February 11, 1918, was on September 14, 1919. At that time Venus passed the Sun at about 5 degrees off the ecliptic. A new Moon only shows up a week and a half later, on September 23, 1919, at which time Venus was about 14 degrees removed from the Sun. A third wave of the influenza appeared four months later, in early February, 1920. But neither the second wave nor the third can be related to the movements of Venus.

After the Asian SARS virus epidemic of 2002 - 2003, I checked the Sun-Venus-Moon positions for the months before the outbreak was detected. An inferior conjunction of Venus directly in line with the Sun and our Moon had happened about three months earlier. That condition (a three-month "incubation") had also been noted for the Spanish Flu epidemic by other researchers.

A number of people have suggested a simpler process. They have suggested the existence of viral forms in the upper atmosphere of Venus. These would appear in Earth's upper atmosphere after being stripped away from the upper atmosphere of Venus by the solar wind, and their travel down the exterior of the plasmasphere tail. I will return to this further below.

Bob Fritzius has tracked the inferior conjunctions of Venus and pandemics for years, and comes to the same conclusion, and presented this evidence in a paper to the AAAS in 2002. See [<http://www.datasync.com/~rsf1/>]. Most of the information below was originally from Fritzius's site.

Lockyer Observatory

Earlier research by Donald Barber at Lockyer Observatory in England, reported in *Perspective* Volume 5 (1963), had shown unidentified bacterial contamination of photographic plates exposed (to the night sky) between 1936 and 1961 followed a pattern of appearing 30 days after the inferior conjunctions of Venus. The bacteria were picked up (apparently) during film processing, and were found in the local spring water supply (used in processing). Their appearance followed a wind from the north, and local rains.

The description by Barber suggests the well-known condition, known to photographers who process film as "flying saucers," which appear in the sky when a water droplet remains on the film during drying. Barber writes:

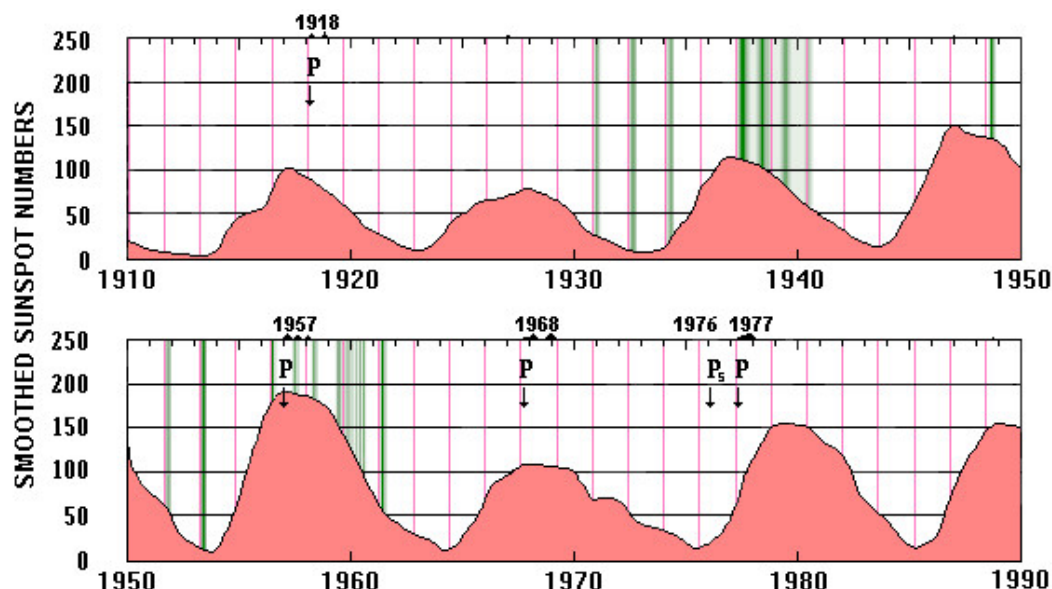
"At the height of each major 'invasion' irreparable damage to freshly processed spectrographic plates was caused by numerous quasicircular craterlike defects (0.05 to 0.25 mm in diameter) from the centre of which the silver deposit had been eroded, and transferred to the perimeter. In a badly affected 1/4 plate negative some 5100 of these craters could be seen at low magnification (x15). In several instances the photographic film was completely liquefied and was seen to slide off the glass base intact."

The "transfer of silver to the perimeter" happens with water drops left on film also. The water drop swells the emulsion, causing the silver to move up, which is relocated to the edge when the emulsion dries and flattens again. But I have never seen "craters," nor have I ever seen film emulsion simply slide off its base. (I teach photography.)

Because the damaging bacteria appeared in each case about 30 days after an inferior conjunction of Venus, and after northerly winds (actually winds from the northwest) and rain, Barber assumed that the bacteria entered the Earth's upper atmosphere (at the aurora borealis) with the solar wind after it passed by Venus. The 30-day delay is about equal to a terrestrial wind speed of 15 miles per hour (24 km per hr) from the auroral region.

Barber further notes that these events only occurred nine times in a period of 25 years. Each followed an inferior conjunction of Venus and a simultaneous "geomagnetic storm," that is, an auroral display. Venus reaches inferior conjunction every year and a half. Bob Fritzius has plotted both the Venus

inferior conjunctions and sunspot activity against the bacterial invasions. See below.



[Image: Sunspots and Venus inferior conjunctions from 1910 through 1990. After Bob Fritzius.]

In the chart above:

- Sunspot activity is shown in red,
- Inferior conjunctions of Venus are shown as red lines.
- Invading bacteria are shown as green bars
- Pandemics are shown as "P" above the chart.

Sunspot activity -- an index of the electrical activity of the Sun -- is difficult to relate to the bacterial invasions. Some pandemics are also shown, but also do not seem to be closely related to sunspot activity. Notice also that in some years nothing happened.

Except in a few cases, the bacterial invasions all follow directly on the inferior conjunction of Venus -- shown as red lines -- and at times seem to "hold over" for a period afterward.

In the chart below I have listed the inferior conjunction of Venus for the period of 1930 through 1961. For each of the inferior conjunctions I have listed if a new Moon appeared at the time of the conjunctions.



Inferior Conjunctions of Venus, 1930 -- 1961

inferior conjunction dates for venus	new moon	bacterial infestation and additional notes
22 NOV 1930	yes	yes
29 JUN 1932	yes	yes
05 FEB 1934	yes	yes
08 SEP 1935	NO	NO
18 APR 1937	yes	yes
20 NOV 1938	yes	(June '38 and June '39)
26 JUN 1940	yes	yes (mild or holdover)
02 FEB 1942	NO	NO
06 SEP 1943	NO	NO
15 APR 1945	yes	NO
17 NOV 1946	yes	NO
24 JUN 1948	NO	yes; Mercury conjunct
31 JAN 1950	NO	NO
03 SEP 1951	yes	yes
13 APR 1953	yes	yes
15 NOV 1954	NO	NO
21 JUN 1956	NO	yes (new moon Jun 9, Jul 6)
28 JAN 1958	NO	(Jun '57; May '58)
01 SEP 1959	yes	(June '59; Apr, Jun, Aug '60)
10 APR 1961	yes	yes

The date of the new Moon was often a few days removed from the "official" date of the conjunctions, since the calculated date is taken as the moment Venus crosses the meridian of the location of the Sun in the sky.

My conclusion is that an intervening Moon is needed for the electrical contact to Earth via Venus. Because the phenomena at Lockyer Observatory are dependent on the weather (as well as, apparently, on the freezing temperatures of winter), the failure of the phenomena to appear in some years does not depend solely on the inferior conjunctions of Venus. But the opposite can be tested: if the inferior conjunction does not coincide with a new Moon, the invading bacteria will not show at all.

This is borne out by the table above, where the absence of a new Moon is marked as "NO" and is also the index for the absence of bacterial infections. There are four exceptions in addition to 10 correlations:

- in June of 1948 there was no new Moon, but on this date both Venus and Mercury were in inferior conjunction;
- in June 1956 the new moon is 12 days early;

- in 1958 there is a 4-month delay; and
- in 1959 there is no relationship at all.

Diseases from Space



[Images: Fred Hoyle and Chandra Wickramasinghe.
After Wikipedia and coseti.org.]

Fred Hoyle and Chandra Wickramasinghe in *Diseases from Space* (1979) claimed a correlation of the severity of influenza pandemics with sunspot activity, and suggested that viruses or bacterial spores could be transmitted to Earth from the tails of comets and with streams of meteors.

--==--

All four of these people are highly respected astronomers and their opinions are not to be neglected. Chandra Wickramasinghe and Jayant Narlikar followed up with another paper in 2001, claiming evidence of bacteria captured at altitudes of 41 km above the Earth. But a pandemic influenza is viral, not bacterial.

All four of these people also assume that the agents of epidemics, viruses or bacterial spores, come from Venus or at least are of extraterrestrial origin. Bob Fritzius writes:

"Compared to Earth, Venus has a negligible magnetic field. That means that the solar wind can disturb its atmosphere directly, and can blow away fractions of its upper atmosphere (including airborne particulate matter) in comet-like fashion."

This suggests the existence of life-forms in the upper layers of atmosphere of Venus, the only part of the planet which actually receives sunlight. At its surface, Venus is jet black. There is no light.

Followers of Velikovsky suggest that, if these life-forms exist on Venus, they will have come from Earth during the near approaches in 2349 BC and other dates to 1440 BC.

There were no "near approaches" as I have pointed out. I contend that Venus did not come to within 10,000,000 miles of Earth at these times. However, there have been periods in the past when the orbit of Venus extended past the orbit of Earth. Transfer of molecules (as ions) along the exterior double layers of plasmaspheres of planets is almost certain. We have clear indications of this for Mercury and for the Moon. This suggests that a transfer could have been made in the remote past, but not at these two dates.

If organisms, originally from Earth, could be delivered back to Earth, it seems likely that bacterial spores and viruses would eventually also be found on the Moon and Mars. This would cause considerable rethinking of our biological uniqueness in the Solar System.

Considering that the bacteria represent 80 percent of the biomass of Earth, and are found absolutely everywhere, it is quite possible that a bacterial transfer from Earth three or four thousand years ago could thrive in the Venusian upper atmosphere. It is highly likely that these forms would have mutated into many diverse species by now. But it is highly doubtful if bacteria would survive transport across 30 million miles (50 million km) of space.

Viruses are the products of bacteria. They do not engage in energy transfers, reproducing instead entirely by intrusion into host bacteria (and other cells structures). Viruses could without a doubt survive a 30 million mile trip through space. Many forms seem to be almost totally indestructible.

John M. Barry, in *The Great Influenza* (2004), one of the best and absolutely engaging books on the 1918 epidemic, spends early chapters in the distinction between viral and bacterial action, which could be considered a primer on the subject, although inconclusive in the admission that we know almost nothing about viruses, where they come from, how they operate, or what their purpose seems to be.

... added note on the Swine Flu of Spring 2009

My first reaction to the Swine Flu outbreak of April 18 - 24, 2009, in Mexico City, was to check for a inferior conjunction of the Sun and Venus at three

montha earlier. There was nothing three months earlier, but there was a conjunction about a month before that date, on March 26, with the Sun, Venus, and the new Moon at inferior conjunction with Earth.

By April 27, 2500 cases were suspected among Mexico, USA, New Zealand, Canada, UK, Australia, and Spain, with 264 confirmed, and 152 deaths. The last were all in Mexico. Veracruz reported 1800 cases of flu-like symptoms by April 6; supposedly there were earlier cases since February (which may be unrelated). The earliest case dates to March 22. Mexico City reported "influenza like illnesses" as early as March 18, 2009.

Typically, the strain is clearly spread by human contact. The World Health Organization confirmed on April 24 that the H1N1 strain has "never been seen before." If this new H1N1 influenza strain is due to Venus, it represents an unusually short incubation period for a SARS type virus.

The alignment of superior and inferior conjunctions of March 26 (Mercury - Sun - Venus - Moon - Earth, with Mercury at superior conjunction), a month before the peaking of the 2009 Swine Flu outbreak on about March 24 is not unlike the alignment of planets on June 20, 1968 (Mars - Venus - Sun - Mercury - Earth), a month before the first outbreak of the H3N2 Hong Kong Flu of July 13, 1968. The Moon did not join this lineup until 5 days later, when Mercury had moved aside (Mars - Venus - Sun - Moon - Earth). The Hong Kong Flu reached maximum intensity two weeks after the first case of July 13, on July 27th.

Added Note, August 2011: Perhaps my suspicions about the Swine Flu were warranted. Andrew Bosworth, in "Exposed: The Swine Flu Hoax" (Lewrockwell.com 2009), Joseph Mercola, in "Major Victory With Swine Flu Scandal" (LewRockwell.com 2009), and a number of other authors have pointed out that the 2009 Swine Flu is a hoax. As Mercola writes:

"It looks as though the swine flu pandemic of 2009 will go down as one of the biggest government and pharmaceutical scams ever; renewing a healthy, and necessary, skepticism about the swine flu vaccine and the dubious dealings behind the implementation of worldwide mass-vaccination programs."

They could have asked me.



Appendix L: Long-Range Chronology.

\$Revision: 42.2 \$ (long.php)

Long-Range Chronology

The following is a list of climatic, cultural, and celestial events. Please see my note at the top of the Chronology chapter regarding astronomical notation and BC/AD notation, as well as the differences between Eastern Mediterranean "BC" dates and the calculated dates for China and Mesoamerica. Some of the dates from the "Annals of Shu" and the Palenque inscription from the Altars of the Cross, as shown below, are corrected. See the text for the reasons for this.

4.6 - 4.4 billion years ago

- Formation of iron meteorites.

ca 4.3 billion years ago

- Formation of the Moon.

ca 3.9 billion years ago

- Formation of the Earth.

ca 3.1 billion years ago

- Formation of Mars.

3.4, 3.1 billion years ago

- First prokaryotic cells

1.64, 1.2 billion years ago

- First eukaryotic cells

880 million years ago

- First multicellular-forms

700 - 500 million years ago

- First instance of breakup of iron meteorites.

560 million years ago

- Cambrian "explosion" of life-forms.

300 - 100 million years ago

- Second instance of breakup of iron meteorites.

250 million years ago

- Permian extinction.
- 40 million years ago**
 - Earliest breakup of Chondrite meteorites.
- 3.2 million years ago**
 - Breakup of most Chondrite meteorites.
- 2.7 million years ago**
 - Breakup of SNC meteorites.
- 500,000 years ago**
 - Breakup of SNC meteorites.
- 414,000 ya**
 - Extent of Vostok Antarctic ice cores.
- 130,000 - 120,000 ya**
 - Eemian interglacial
- 120,000 ya**
 - Lowest level of Greenland ice cores.
- ca 40,000 - 10,000 ya**
 - Upper Paleolithic.
- 27,000 ya**
 - First Venus Figurines, then disappear for 12,000 years.
- 25,000 - 12,000 ya**
 - Last northern glaciation.
- ca 15,000 - 10,000 ya**
 - Use of the cave of Lascaux. Some others date to 30,000 ya.
 - Venus Figurines show up again.
- ca 12,500 ya**
 - "Glacial maximum" -- the end of the previous 40,000 years of sporadic glaciation in Western Europe, and the maximum extent of the European Glaciation.
- 12,800 - 11,500 ya (uncal C14) (10,900 - 9,000 BC)**
 - Destruction of North America (Firestone).
 - Younger Dryas, extremely cold.
 - The darkness before the chaos.

-=- BC notation -=-

10,900 BC

- Start of the darkness before the chaos.
- Three ball plasmoids light up in the south.
- Start of the "first creation" of the Olmecs.

ca 11,000 BC

- First mixed farming and hunting in Levant.
- Cultivation of first grains in Anatolia.

9,600 BC

- A 200-year-long dry and cold period in Levant.
- Middle East abandoned.
- Farming moves to Black Sea basin from Anatolia and nearby Eastern Europe.

9,500 BC

- Northern glaciation gone.

9,400 BC

- Weather improves, farming returns to Middle East.

9,000 BC

- Hypsithermal climatic period starts.
- Earth drops down from a lateral location near Saturn.
- End of Younger Dryas.

8,500 BC

- English Channel flooded.

ca 8,500 BC

- First use of tokens in northern Mesopotamia, Anatolia.

8,347 BC

- End of the "first creation" of the Olmecs.
- Prior appearance of "the turtle," Peratt column plasmoids.
- Prior appearance of the three hearth stones.

ca 8,000 BC

- Jericho walls and tower in Palestine (abandoned by 6,800 BC).
- Start of wet phase of Sahara.

ca 7,400 BC

- Catal Huyuk in Anatolia (abandoned 6,200 BC).

ca 6,700 BC

- No more male figurines at Catal Huyuk.

ca 6,500 BC

- Lepenski Vir graveyard along the Danube (to ca 5,500 BC).

6,200 BC

- A 400-year-long dry and cold period in Levant.
- Middle East abandoned; Catal Huyuk abandoned.
- Farmers return to Black Sea area.

ca 6,000 - 3,000 BC

- Neolithic Period.

5,800 BC

- Farming returns to Middle East.
- Warm, moist period starts.

ca 5,600 BC

- Black Sea floods, farmers disperse in every direction. This flood is the "flood before the flood" of the *Gilgamesh Epic*.
- Earth below Saturn.
- Approximate date of creation based on Septuagint bible.
- Early Ubaid period in Mesopotamia (to ca 4000 BC).

after 5,600 BC

- Figurines in Anatolia become abstract.

ca 5,400 BC

- Black Sea farmers have reached deep into Europe, Anatolia, Russia, Central Asian lakes region.

ca 5000 BC

- Wood henges appear in Central Europe.
- Carnac causeways constructed.

4939 BC

- Saturn starts to appear in the sky as an egg.
- Creation is dated from here by some people.

ca 4700 BC

- First Barrow graves in Portugal.

ca 4500 BC

- First barrow grave at Carnac.
- Pit graves (kurgans) in Eastern Europe (to 2000 BC).

ca 4400 BC

- Asian herders (nomads) show up in Eastern Europe, Middle East, and penetrate to Western Europe. They will reach Persia and India in 2000 BC.
- 1500 BC. After 2000 BC these include horse nomads.

4300 BC

- Birth of Thoth (from Turin Canon).

4077 BC

- Saturn lights up; "time" starts, creation (from King List).
- First descent of Mars.
- 8 Kings reign 1072 years by the *King List*.
- Birth of Adam (Saturn), 930 years before 3147 BC.

4004 BC

- Ussher, OT creation (1655 years to the flood of 2349).
- Approximate creation date from Mesoretic Bible sources.

ca 4000 BC

- Carnac "Grand Menhir" constructed.

3944 BC

- Creation date per Mesoretic Bible (1948 yrs, Adam to Abram).

ca 3800 - 3400 BC

- Barrow graves in France, Ireland, England.

3761 BC

- Creation date of the current Jewish calendar.

ca 3600 - 3400 BC

- Most European stone henges are started (West Kennet 3600 BC; Avebury since 3900 BC, the ditch in 3300 to 2630 BC).

ca 3400 - 2400 BC

- Passage graves in France, Ireland, England.

ca 3200 BC

- Other dates for New Grange 3200 BC, Avebury 3000 BC.

ca 3147 BC

- Actual date of the end of the "Era of the Gods" based on subtracting 6 Baktuns from 747 BC. This may be 3148 BC.
- Saturn removed; the flood of Gilgamesh -- the actual world flood.
- The negotiations of the Gods start (to last 80 years).
- Warm moist period (from 5800 BC) ends.
- 200-year Jemdet Nasr period in Mesopotamia and Anatolia: the developing script is abandoned, counting tokens are in use again, and trade regresses.
- Jupiter assumes a steep mountain shape.
- Year to 240 days.
- Sahara wet phase ends (circa 3440 BC).
- End of the "second creation" of the Olmecs.

3114 BC

- Popularly retrocalculated starting date of the second round of the Maya calendar (actual is 3147 BC).

ca 3067 BC

- Most likely first regular appearance of Mars/Horus; inferred to have happened 10 times by Egyptian records, 10 or 11 times by the *Kings List*, 10 times by the Maya *Chilam Balam*. Lasts to ca 2750 BC - 2700 BC.

ca 3100 - 3000 BC

- Last Sumerian influences in Egypt.
- Construction of barrow graves falls off.

2896 BC

- Earliest calculated date (creation) of the *Annals of Cuahitlan*.

ca 2860 BC

- Jupiter enters the asteroid belt, drops its mountain coma shape, and assumes the "shen" shape.
- End of the first Egyptian dynasty.
- Construction of the Sphinx at Giza.
- First possible use of shen for Olmec day names.

ca 2800 BC

- King 13 of Kish, Etana the shepherd, first historical king. Other information has that Etana is a god, thus may be Mars seeming to lead a herd of debris (the "Followers of Horus").

ca 2750 - 2700 BC

- Most likely the end of visits by Mars/Horus (2770 BC).
- Egyptian Old Kingdom third dynasty - to 2200 BC.
- Gilgamesh, dated King of Uruk, in contact with Aga the 23rd King of Kish, builds walls of Uruk (actually rebuilds the walls).

ca 2686 BC

- Step-pyramid of Zoser completed.

ca 2690 - 2550 BC

- First three Egyptian true pyramids at Meidum and Dashur completed.

2630 BC

- Last of the Horus Kings in Egypt, thus the visits by Mars/Horus have ended perhaps a hundred years earlier.

2627 BC

- Pyramids started in the Andes.

ca 2527 BC

- Jupiter resumes a mountain shape.

ca 2590 - 2500 BC

- Giza pyramids in Egypt completed.

2490 BC

- Silbury Hill chalk mountain built in England (2490 - 2340 BC).

ca 2438 BC

- Jupiter loses its mountain-shaped coma (estimated).

ca 2400 BC

- Stonehenge is reconstructed, east causeway added.

2349 BC - September 8

- Disturbance by Venus, September 8 (Olmecs)
- Noachian flood (fall of the Absu).
- Old Kingdom reduces agriculture and construction.
- Dating of flood legend in China.
- Stonehenge reconstruction stops.
- Year to 260 days.
- Jupiter again develops a mountain-shaped coma.
- Tzolkin 260 day calendar introduced.

ca 2347 BC or after

- First records of the *Annals of Shu*.

2345 BC

- *Pyramid Texts* first mention Osiris and his resurrection (follows resurrection of Jupiter in 2349 BC).

ca 2338 BC and after

- Sumer conquered by Sargon of Akkad.

2336.8 BC (corrected)

- "Birth" of Jupiter, Venus, Mars -- inscriptions at Palenque;

ca 2300 - 2200 BC

- First transcribed records of the *King List*.

2282.6 BC (corrected)

- Moon in orbit ("crowns herself"), Palenque, recorded as 2305;

2277 BC (corrected)

- Annals of Shu: Moon joins Yao, listed as 2287 BC.

2247 BC

- "Tower of Babel," dated by Ussher as "after 2247 BC"; but see 2150 BC.

2205 BC

- Shun (the Moon) retires or "dies," *Annals of Shu*; might be 2193 BC.
- Yu, first king of the Xia Dynasty.

2193 BC (156 years after the fall of the Absu)

- A third disturbance by Venus.
- Severe climatic downturn.
- 200 years of drought worldwide.
- Fall of Akkad, end of Old Kingdom.
- Malta depopulated.
- Year goes to 273 days.
- Fire on the Moon.

2192 BC

- Atland sinks, according to the *Oera Linda*.

2150 BC

- Yao (Jupiter) dies, listed as 2257 BC.
- *Chilam Balam*: "fire on high" (sb 2167 - 2147 BC).
- 2155 BC -- *Annals of Shu*: Celestial Phenomena.
- ca 2150 -- Cylinder of Gudea: splendor of Ningirsu.
- 2150 BC -- extent of Abraham's lifetime, 175 years since the Moon first showed, 199 years since the fall of the Absu in 2349 BC.
- likely date for Ussher's "Tower of Babel."

ca 2100 BC

- Stonehenge completed after a 200-year delay.

2052 BC

- Start of Egyptian Middle Kingdom.

ca 2000 BC

- Composition of the *Enuma Elish* creation myth.

1996 BC

- Abram born, Bible record (350 years after the OT flood).

1936 BC

- Estimated return of Mars, 1130 years after 3067.
- Destruction of Sodom and Gomorrah.

1887 BC

- Monte Alto founded, Guatemala.

ca 1750 BC

- *Code of Hammurabi*, standard corrected chronology.

1492 BC - April 19

- Disturbances of Earth by Venus, April 19 (Olmec).
- Exodus of Moses.
- Abrupt end of the Middle Kingdom.
- Chinese Xia dynasty suddenly ends.
- Twenty years of dense cloud cover.
- Year to 360 days.
- Start of the Haab calendar,

ca 1500 - 1200 BC

- Indo-European Hittites settle in central Anatolia.

1440 BC

- Destruction in Mesoamerica.
- (1442 BC) The sun stands still for Joshua.

1367 BC

- Monte Alto abandoned.
- San Lorenzo established.

ca 1350 BC

- Santorini explosion, one of a number of possible dates.
- Founding of the Povert Point, LA, concentric berms.

ca 1200 BC

- Battle of Troy as claimed by Herodotus.

1125 BC

- The Shang Dynasty ends.

ca 1100 BC

- Fractional math based on the Eye of Ra is in use.

1027 - 221 BC

- Chou Dynasty.

900 BC

- The Ark is moved to the temple in Jerusalem.

847 BC

- San Lorenzo destroyed.
- Tres Zapotes established.

806 BC

- First appearance of Mars near Earth (9 times to 687 BC).
[other appearances as follows:]

	Julian	Gregorian	event
	806 BC	Spring 805 BC	
	791+	Oct	
	777	Feb 776 BC?	the 'ballgame?'
	762+	Oct	lesser impact
	748	Feb 28 747	Earth shock, year chan
ges			
	733	Oct	lesser impact
	718	Mar	
	703	Oct 702	lesser impact
	688	Mar 687	last sight of Mars

776 BC

- A visit by Venus, Mars, and Mercury (the ballgame), events recalled in the *Iliad* and the *Popol Vuh*. - Visit of One-Hunahpu and Seven-Hunahpu to the underworld (or 762 BC).

772 BC

- First Olympic Games.

762 BC

- Alternate visit of One-Hunahpu and Seven-Hunahpu to the underworld.

before 747 BC

- La Venta takes the "may."

747 BC - February 27

- Mars jars Earth, changes the Earth orbit, February 26;
- Nabonassar introduces a new chronology, effective February 27.
- Olmecs set Long Count to 6.0.0.0.0, February 28.
- Calendar reforms follow worldwide (Rome February 28).
- Founding of Rome (there are other dates).
- Four more close calls by Mars over next 60 years (Olmec).
- (before 747 BC) Rome adds two months to the calendar.
- Haab modified with 5 additional days.

ca 750 BC

- Hesiod and Homer write (traditional).

689 BC

- Destruction of the temple of Marduk at Babylon.

686 BC - March 23

- March 23: Mercury jars Earth. Mercury on fire.
- Sennacherib's army disaster.

685 BC - June 15, July 25

- Temple of Marduk rebuilt at Babylon.
- Venus and Mercury start to blaze, June 15.
- Jupiter develops a coma, July 9.
- Jupiter releases a plasmoid bolt, July 14.
- Jupiter's plasmoids lands at the Sun, July 25.

684 BC (astronomical)

- Earth's perihelion changes, polar axis relocated in space.
- A new Great Year started on March 8th (old equinox).

670 BC

- Earth's orbit suddenly becomes circular.

628 - 551 BC

- Zarathustra, Zoroastrianism (Mazdaism).

612 BC

- Library of Assurbanipal at Nineveh burns down.

607 BC

- Calendar revised, Monte Alban.

604 - 531 BC

- Lao-tse (China), Taoism.

597 BC

- Jews exiled to Babylon.

563 - 483 BC

- Siddhartha Gautama, the Buddha (India).

536 BC

- Cyrus allows the Jews to return to Jerusalem.
- Jewish world history compiled, Bible edited.

551 - 479 BC

- Confucius (China).
- *Annals of Shu* collated by Confucius.

430 - 404 BC

- Peloponnesian Wars.

334 BC

- La Venta destroyed.
- Monte Alban primacy.

ca 331 BC

- Alexander receives celestial records from the Chaldeans.

332 BC

- Death of Alexander.

ca 280 BC

- *King List* published by Berossus in Greece.

275 BC

- Monte Alban rebuilt.

272 BC

- Mithraism in Partia.

239 BC

- *Canopus Decree* attempts calendar reform.

213 BC

- Book burning in China.

128 BC

- Hipparchus calculates the precession of the equinox.

ca 100 BC

- Date for which Josephus claims the electric fire stopped.

AD 179

- Teotihuacan established.

ca AD 600 - 800

- Last red ring of the Absu fades.

ca AD 700

- Monte Alban in decline.

AD 692

- Teotihuacan destroyed.

ca AD 726

- Tula established.

ca AD 1170

- Tula abandoned early.

ca AD 1219

- The "may" at Cholula.

ca AD 1800

- Last of the falling Absu sprinkles.

ca AD 1840

- Last of the path of the ecliptic faded.



Appendix M: The Red Sirius.

\$Revision: 42.1 \$ (sir.php)

Contents of this Appendix: [\[Ptolemy\]](#) [\[The Maya\]](#) [\[Gregory of Tours\]](#) [\[Al-Sufi\]](#) [\[Sima Qian and Yu Ji-cai\]](#) [\[Summary\]](#)

In the second century AD, Ptolemy (working from Alexandria in northern Egypt) reports the star Sirius as red, as do others in late antiquity. However, Sirius is listed as white by the Arab (Persian) astronomer Al-Sufi in the *Book of fixed Stars*, published in AD 964. Both Ptolemy and Al-Sufi were very competent astronomers.

At a much earlier time Sirius was clearly recognized as white. As the brightest star in the sky, ancient records appropriately speak of Sirius as "the star of Venus," where Venus was the brightest planet in the sky. This would not make much sense if Sirius were inherently red. The differences between these three periods are as follows:

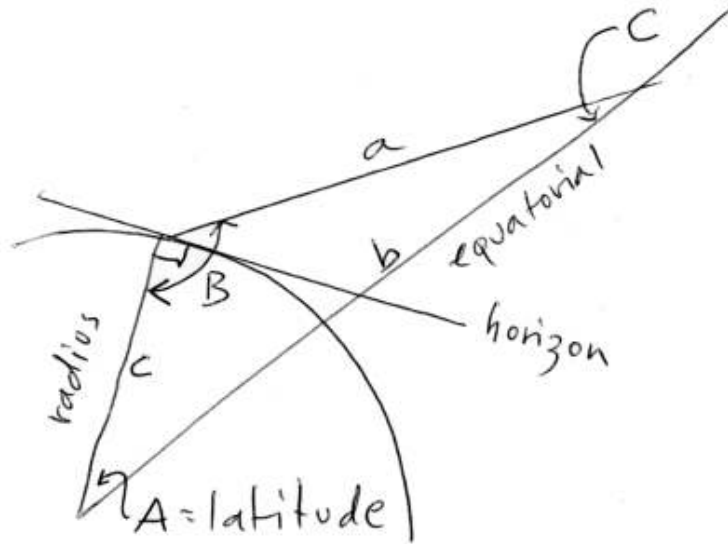
Ptolemy, AD 200

Before 685 BC, as developed in the text, Sirius was located only a few degrees below the equatorial, rising almost directly east and setting almost directly west. It would have traveled above the Absu, which nowhere reached the height of the equatorial in the south skies. For example, at Cairo, at **30 degrees** latitude (0.13 degrees south of Alexandria), Sirius would reach its highest point in the south sky at an elevation of about **61 degrees** before 685 BC.

My estimate of the limit of the intact Absu was 8500 miles (14,000 km) above the surface of the Earth at the equator. This was seen at about **48 degrees** above the south horizon at Cairo. At this time Sirius would have been white, since it did not shine through the Absu or the remaining red ring after the fall of the Absu.

In 685 BC the location of the equatorial shifted, so that at Cairo Sirius was lowered to **43 degrees** at its highest point in the south sky. It now rose in the

southeast, and set in the southwest. Sirius was now reported as "red," which means it appeared behind the last remnant ring of the Absu. From this information at Cairo we can locate the last red ring.



[Image: Sight line to red ring. Illustration by J. Cook.]

The elevation of the red ring above the equator of the Earth can be found from the relationship:

$$a / \sin(A) = b / \sin(B) = c / \sin(C).$$

From the diagram above, the location of the ring above the Earth's equator can be found from the radius of Earth and the two adjacent angles, where angle **A** is the latitude of Cairo, angle **C** is between the sight line and the extension of a radius line at the equator.

A = 30 degrees, the latitude of Giza

B = 90 + 43 = 133 degrees

C = 180 - B - A = 180 - (90 + 43) - 30 = 17 degrees.

In the following, **b** is the height of the ring from the center of the Earth and **c** is the radius of the Earth. Thus:

$$b = c * (\sin(C) / \sin(B)),$$

$$b = 4000 * (\sin(133) / \sin(17)) = 10,005 \text{ miles.}$$

The last red ring is thus located $10,005 - 4000 = 6,000$ miles (9,600 km) above the equator.

Ptolemy, I should note, actually could have had it both ways. For although Sirius would have been seen as red when it stood high in the sky, it rose in the southeast, away from the red snake in the sky (which touched the eastern horizon directly east), and set in the southwest, also away from the red ring. At these two locations it would have been white.

But in rising higher in the sky Sirius crossed the remaining red ring. In fact, at the latitude of Cairo I would presume that Sirius spent most of its travels behind the red ring.

Maya, AD 800

After about AD 800, when the Maya start the construction of a 61-mile (98 km) causeway running from east to west across the Northern Yucatan, this last red ring had most likely disappeared. It may, in fact, have been gone before AD 600. In the 20th century AD, the Maya still recalled the "cord in the sky," through which blood flowed, but which had disappeared in the past. The 16th-century AD *Popol Vuh* calls it the "river of blood." It can be assumed that the "river of blood" was like the "river of pus" (the ecliptic, as in the *Popol Vuh*) and that the "river" probably did not subtend more than a few degrees in the sky.

An investigation by George Jones in about AD 1910 at Quito, Peru, determined a width of the ecliptic as **2 to 3 degrees**. The earliest iconography of the Olmecs at La Venta, dating to around 600 BC, also show the "Saint Andrew's Cross," the crossing of the ecliptic and equatorial in the night skies at the time of the equinoxes, as two bands of nearly the same width.

Gregory of Tours, AD 550

In about AD 560-590, Gregory of Tours still calls Sirius "reddish," although he may have copied that information from Ptolemy. Tours is at **47.38 degrees** north latitude. At Tours the equatorial would be seen at an elevation of 90 degrees less the latitude, $90 - 47.38 = 42.6$ degrees. In AD 550 Sirius would be seen at an angle of about **16 degrees** below the equatorial (this is true everywhere for this date and for the early part of the first millennium AD), thus at **26.6 degrees**.

Using the same geometry as before, we can find the distance between the observer and the intersection of the equatorial at the location of the remaining ring from:

$$a = \sqrt{b^2 + c^2 - 2 * b * c * \cos(A)}$$

$$a = \sqrt{10000^2 + 4000^2 - 2 * 10000 * 4000 * \cos(47.38)}.$$

This is **7863 miles**. The angle C can be found from:

$$\sin(C) = (c / a) * \sin(A)$$

$$\sin(C) = (4000 / 7863) * \sin(47.38) = 0.3743.$$

The corresponding angle (from sine tables) is **22 degrees**. Subtracting this angle and the latitude from **180 degrees** yields **110.6 degrees**. Now subtracting **90 degrees** (the angle between the Earth radius and the horizontal), determines that the red ring would have been seen at an elevation of **20.6 degrees**.

This is a considerable span -- **4.6 degrees** -- below the culmination of Sirius. The path of Sirius would thus cross the red ring, and Sirius would turn red twice a night.

Al-Sufi, AD 900

When, after about AD 900, the Arab astronomer Al-Sufi catalogues stars, he lists Sirius as "white," as it still is today. Al-Sufi worked from Isfahan at **33.63 degrees** north latitude. At Isfahan the elevation of the equatorial is at **56.4 degrees**, and Sirius travels (at about AD 900) at **15.4 degrees** below the equatorial, and thus culminates at an elevation of **41 degrees** above the south horizon.

Using the same geometry as above, the distance from the observer to the location of the ring (assuming it existed still) at the plane of the equatorial can be found from:

$$a = \sqrt{10000^2 + 4000^2 - 2 * 10000 * 4000 * \cos(33.6)}.$$

This is **7026 miles**. From this the angle of elevation to the rings can be found as:

$$\sin(C) = (4000 / 7026) * \sin(33.6) = 0.315.$$

This represents an angle of **18.3 degrees**. The elevation is thus **180 -33.6 -18.3 -90 = 38.1 degrees**. This is only **2.9 degrees** below the culmination of Sirius in the south sky. It suggests that, although at this location Sirius would have crossed the red ring if it still existed, by AD 900 the ring probably had disappeared. This is also suggested from the Maya construction project in AD 800. On the other hand, as an astronomer, perhaps Al-Sufi realized that the white star Sirius just passed through the red ring twice each day.

Sima Qian and Yu Ji-cai, AD 100 and 200

This change of color shows up in Chinese documents, as, for example, in the *Book of Asterisms* by Sima Qian, dating from about 100 BC, which reads:

"If Wolf [Sirius] shows horns or changes colour, then there will be much banditry,"

or, from *Secret Garden of the Observatory* by Yu Ji-cai, of circa AD 200:

"If the Wolf Star shows rays or horns, or shakes about, or changes colour, then there will be war."

This information is from Jiang Xiao-yuan, in "The colour of Sirius as recorded in ancient Chinese texts" (*Chinese Astronomy and Astrophysics*, 1993), which sets out to prove that Sirius is noted as being white in four records, each dealing with color standards for stars, dated between 100 BC and AD 650, which were judged by Jiang to be more reliable than the astrological texts quoted above. Jiang admits, however,

"Although ancient Chinese writings always had a tradition of copying what previous authors had said, so that the four items listed [in the article] are probably correlated to some degree, we should not therefore deny ancient Chinese astrologers of any originality whatever. That [the Jinzhou Book of Prognostication of circa AD 100] lists both Sirius and Vega as standards for white star is worth noting. These two are indeed white bright stars of the same type."

However, the "shaking," "horns," and "changes in color" would be explained if Sirius, the brightest star in the sky, traveled behind a portion of the last remaining ring -- "shaking" being caused by the passage of the moving ring in front of the star (like with Saturn, the Earth's equatorial rings move at rotational

speeds different from the planet). The "horns" are caused by refraction by the striation pattern of the intervening ring (the rings of the Absu had been described as reeds growing in a swamp and as bushes, thus radially oriented), and a "color change" is caused by entry and exit of Sirius from behind the ring.

This last is caused, as noted above, by the fact that Sirius is "attached" to the dome of the stars and thus travels in a circle with the polar axis as its center, whereas the rings are an artifact of the Earth, forming a crescent shape in the sky, which gathers together at the east and west cardinal points, and spreads apart at its high point in the south skies.

A look at where Sirius and the red ring were located in the sky when seen from Beijing might help, although the astrology of the shaking, horned, and color-changing Sirius may have come from different latitudes. Beijing is at **39.5 degrees** north latitude. Thus the equatorial rose **50.5 degrees** up from the south horizon. With Sirius placed at a declination of **16.3 degrees** (circa AD 150), it rose to a maximum height of **34.2 degrees**.

As before, the length of the sight line is:

a = sqrt (10000^2 + 4000^2 - 2 * 10000 * 4000 * cos(39.5)).

This is **7367 miles**. From this the angle of elevation to the rings can be found as:

sin(C) = (4000 / 7367) * sin(39.5) = 0.345.

This represents an angle of **20.2 degrees**. The elevation is thus **180 -39.5 -20.2 -90 = 30.3 degrees**. This is **3.9 degrees** below the highest location of Sirius in the south sky. Thus Sirius moved across the red ring twice each night.

Summary

Let me summarize the data, presented in historical order.

Intersection of Sirius with the red ring							
location	era	latitude	equatorial	Sirius declination	Sirius elevation	ring elevation	diff
Beijing	150	39.5	50.5	16.3	34.2	30.3	3.9

Cairo	200	30.0	60.0	16.3 deg	43.0	43.0	0.0
Rome	200	41.9	48.1	16.5	31.6	27.3	4.3
Tours	570	47.4 deg	42.6 deg	16 deg	26.6 deg	22.0 deg	4.6 deg
Isfahan*	950	33.6	56.4	15.4	41.0	(38.1)	2.9

*-- Sirius listed as white at this time

Declination of Sirius depends on the date

Since 685 BC, the path of Sirius through the sky always starts and ends about **19 degrees** south of directly east and west. Thus the semi-circle described by the path of Sirius could fall completely within the semi-circle of the rings, but would cut through the band of the red ring and perhaps rise above it when directly in the south. Only at Cairo does the upper portion of the path of Sirius coincide with the ring -- but that is how I have defined this condition.

It is, of course, arbitrary, but justified in that many other authors from late antiquity note the redness of Sirius, including Babylonian cuneiform tablets after about 650 BC (at 33.3 degrees latitude) and Roman authors (at 41.9 degrees north latitude). The results for Rome in about AD 200 are much the same as for Beijing at the same date. I have added Rome to the list above.

Since Rome is at 41.9 degrees latitude, it could be suggested that the red band in the sky in circa AD 200 extended across 4 degrees in the sky. Four degrees is the equivalent of one hand-span (without the thumb) at arm's length. This is also suggested by two other data points. First, the records of planetary actions in Babylon after 650 BC seem to indicate rather sudden changes in refractive patterns, suggesting a tight band of red. Second, the Quiche *Popol Vuh* call the red band a "river." The details of that story are contemporaneous with the plasma event of 685 BC.

I would expect Al-Sufi at Isfahan (33.6 latitude) to have seen a red-colored Sirius, for the latitude of Isfahan falls between Cairo and Rome, except that the date is obviously late. A hundred years earlier the Yucatan Maya were rebuilding the red road in the sky on Earth -- which almost guarantees that the red ring had disappeared within the previous hundred years or so.

In Beijing (39.5 degrees latitude), Sirius could have been the measure for white, for it is very bright, but could also legitimately described as changing color -- since it would have traveled behind the red ring in reaching its culmination. This is, in fact, true for all the sites listed above.

Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.017+ and deg=57.2+; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Appendix N: Age of the Universe.

\$Revision: 42.2 \$ (age.php)

Contents of this Appendix: [\[The Milky Way\]](#) [\[The Local Group\]](#)
[\[The Virgo Supercluster\]](#) [\[The Visible Universe\]](#) [\[Endnotes\]](#)

[Revised 8 May 2005, 7 July 2005] The accepted age of the Universe is a modest 15 billion years, based on a "Big Bang" event at the beginning of time. I won't bring forward the accumulated data which argues against the "Big Bang" -- a derisive term coined by Fred Hoyle, which stuck.

The Milky Way

It would be better to take a look at Halton Arp's book *Seeing Red* (1998). Our galaxy is the daughter of a nearby galaxy in Virgo, and we in turn seem to be the mother and grandmother of two additional generations of offspring galaxies. I have seen recent estimates that it would take 100 billion years to "form" a galaxy. But Arp suggests (through an example) as little as 8 billion years. I'll use the very conservative value of 8 billion years between generations. As a grandmother, the Milky Way is three generations old.

Age of the Milky Way galaxy

3 times 8 = 24 billion years.

If the Milky Way is typical of a leaf on the branches of the Universe, then the Universe might be very old. If we could count galaxies (they count in the billions), and get some idea of the connections between them (they tend to form in groups, with vast empty spaces in between), we could form an estimate. If there are indeed billions of galaxies, and they multiply by sending new pairs out from their center (as Arp has suggested) every 8 billion years, then the galaxies have multiplied like rabbits. I'll do the math for a Fibonacci series. [\[note 1\]](#)

The Local Group

The local group, to which the Milky Way belongs, contains only about 40 galaxies. The 9th term of the Fibonacci series reaches a value of 34. That represents 9 generations, assuming that *this* portion of the Universe started from a single other galaxy.

Age of the Local Group of galaxies

9 times 8 = 72 billion years.

The Virgo Supercluster

But we are part of the Virgo Supercluster which contains about 27,500 galaxies. The 23rd term of the Fibonacci series reaches a value of 28,657, representing 23 generations.

Age of the Virgo Supercluster

23 times 8 = 184 billion years.

The Visible Universe

A web source lists 3,850 billion galaxies in the "visible" Universe. The 62nd Fibonacci term is 4,054 billion.

Age of the Visible Universe

62 times 8 = 496 billion years.

The really big numbers generated by a Fibonacci Series increase much faster than the index of the series. It is the "index" which is a measure of age. Thus there might be a finite number which represents the real age of the Universe. However, there are plenty of people who believe the Universe is infinite in size and infinite in age. [\[note 2\]](#)

Endnotes

Note 1 --

The estimates on the galaxies at various visual spacings from Earth are from Richard Powell, [\[http://www.atlasoftheuniverse.com\]](http://www.atlasoftheuniverse.com).

For an expansion of Fibonacci terms see
[\[http://www.mcs.surrey.ac.uk/Personal/R.Knott/Fibonacci/fibtable.html\]](http://www.mcs.surrey.ac.uk/Personal/R.Knott/Fibonacci/fibtable.html)
[\[return to text\]](#)

Note 2 --

Lars Wåhlin, in *The Deadbeat Universe* (1997, rev. 2003), estimates that one fourth of the life of a collapsing universe has passed, which will end at the count of $2.47 * 10^{20}$ seconds. One fourth of this is equal to $1.95 * 10^{12}$ years -- 1,950 billion years. That is about 4 times the value I derived.

[\[return to text\]](#)

Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions (a)rctangent, (s)ine, and (c)osine use radians; angle conversions to radians or degrees by the divisors rad=.017+ and deg=57.2+; other functions are shown as f(); tan()=s()/c()

units: million == 1,000,000; billion == 1,000,000,000;

AU == 93,000,000 miles.



Appendix O: List of Books.

\$Revision: 42.8 \$ (books.php)

An Introduction

Most often bibliographies weigh in as a cudgel to convince the reader of the level of scholarship of the author. And most often they are only accessed by the reader to check if a favorite author has been included for consideration. In fact, I left off the list any number of books -- books I totally disagree with, or which have served me badly despite some measure of inspiration. I should not subject you to trash and junk.

Annotated bibliographies, as you will find here, are much more interesting. They present the author as if he is pushing a pile of books across the table toward the reader, saying, "read these first," noting their individual importance, what was learned from them, and also what was glossed over or neglected. Ideally such a source list ought to be organized by the chapters of the prime text, but only do that in the second half of this list. In the first part I will list by topic. Some 400 or 500 books have been accessed, of which about half are in my possession. In addition I have accessed about 4600 other source documents from the Internet, disappeared websites, specialized CDROM's, most all of which are to be found in the "files" subdirectory.

Some books have by this time (2010) appeared on the Internet, making them suddenly amenable to instant textual searches. I'm not listing math, physics, chemistry, etc., required to get an engineering degree, or most of history, literature, art, astronomy, and other topics needed to round one out beyond engineering. Thus missing also are Hesiod, Homer, Herodotus, Thucydides, Ovid, and any number of other Greek or Roman commentators.

What Else Is Missing Here

Except for (I think) three references to texts on plasma, all texts dealing with course work for an engineering degree are missing: Analytic Geometry,

Differential Calculus, Integral Calculus, Differential Equations, Statistics, Investment Discounting, Set Theory, Boolean Algebra. That is the math. Then there are the courses in Physics, Chemistry, Materials, Mechanics, and the usual Thermodynamics. Some additional topics particular to my degrees in Electrical Engineering and Industrial Engineering: Field Theory, Transmission Lines, Fourier Analysis, Information Theory, Difference Calculus, Operations Research. I should note also Particle Physics (Atomic Physics), which we called the Atom Bomb Course.

I actually learned Boolean on my own, and used it for the design of relay switching circuits for years. Similarly I learned just enough spherical geometry to be able to apply it for a computer program which calculated the location and time of the rising Sun along with the zenithal angle for any day and latitude ([sun.html](#) available locally).

Do I remember any of this? No. But I know the basics of *what* exists, where to look it up, how to get into the topic again. This is the result of the discipline of engineering rather than any specific course work: you learn that there are likely solutions, and you learn to research them.

At some point, I think as part of the Industrial Engineering course work, I learned a variety of Basic, which was just being introduced at that time for use on a University mainframe, with input via punched cards. Where I worked at the time I had to backtrack and use punched cards as program and data on hardwired "accounting machines" to carry out a simulation of transit travel demand. But the outfit got a mainframe a year later, and Fortran 4 was offered by the supplier, General Electric, still using punched card as input. Since that time I have learned portions of a number of languages -- including shell programming (Bash), Perl, PHP, sed (yes!), and any number of other odds and ends, but all to the point of solving some problem, or the need to design a script. And then I quickly forget.

Primary Source Books

Immanuel Velikovsky, *Worlds in Collision* (1950)

The book which started it all, relates the near contact between Earth and Venus at the time of the Exodus of Moses. Almost entirely evidenced from tales and histories rather than physical data.

Immanuel Velikovsky, *Earth in Upheaval* (1955)

A compendium of physical catastrophic evidence. Most of it has been more clearly defined since 1955.

Immanuel Velikovsky, *Ages in Chaos* (1952)

The first of a series of book presented as a revision of Middle East chronology. Followed by *Peoples of the Sea* (1977); *Rameses II and His Time* (1978); and, never published: *The Dark Ages of Greece* and *The Assyrian Conquest*. This data is mostly accepted, although still under discussion. The unpublished titles are on line at [\[Jan Sammer's website\]](#).

Giorgio de Santillana, and H. von Dechend, *Hamlet's Mill* (1969)

The forerunner to the post-Velikovsky polar configuration thesis by David Talbott (below), dealing mainly with the fall of the Saturnian polar configuration. Scholarly, but offers no physical model, except to suggest a succession of "ages" based on an erroneous backward extension of the precession of the equinox. The amount of information presented, however, is astounding. Originally undertaken as an antidote to Velikovsky's book.

Julian Jaynes, *The Origin of Consciousness in the Breakdown of the Bicameral Mind* (1976)

Worth reading a few times. The specific conclusions may not be acceptable to you, but the information about how we think is absolutely solid. Jaynes claims that the *subjective consciousness* we exhibit did not become part of human culture until the first millennium BC -- late, very late. Most interesting is his assembly of cultural evidence from the second and first millennium BC, most of which is related to the gods of Mesopotamia and Greece, but unrelated to the literature of catastrophism. This has been one of my most solid sources.

Henry Bauer, *Beyond Velikovsky: The History of a Public Controversy* (1984)

Looks like a "must-have" text of reasonable criticism of Velikovsky's thesis in being a summary, but turns out to be very mainstream and biased.

David Talbott, *The Saturn Myth* (1980)

The book which started all the interest in the polar imagery. This was the answer to what de Santillana and von Dechend were looking for.

Talbott's search among Egyptian and Mesopotamian sources established the image of a large globe above the Earth at the North horizon in remote antiquity. Many other researchers have followed up on his initial concepts, proposing various physical models. The original purpose was to disprove Velikovsky.

Alfred de Grazia's writings.

Everything is on line at [\[http://www.grazian-archive.com\]](http://www.grazian-archive.com) in PDF as complete books or HTML as separate chapters.

-- *Chaos and Creation* (1981) more or less (more less than more) parallels these pages, except that it is a Young Earth thesis, and simply lacks any consideration of the information which has been developed in the last two decades.

-- *God's Fire* (1983) is the story of Moses and the Exodus (1500 BC). De Grazia reviews works by every biographer of Moses since antiquity, the operation of the Ark, the organization of the camps, the details of the whole migration, the electrical tricks of Moses, his interaction with Yahweh, and the character and psychology of Moses.

-- *The Velikovsky Affair* (original 1966, current 1978) records the tribulations of Velikovsky on the publication of *Worlds in Collision*. With essays by Ralph Juergens, Livio C. Stecchini, and Velikovsky. The two introductions by de Grazia are the best introduction to all of the controversy.

-- *Cosmic Heretics* (1984) is an amazing biography of the whole alternative cosmology movement since Velikovsky. Perhaps too verbose and too much about Alfred.

-- *The Disastrous Love Affair Of Moon And Mars* (1984); an absolutely great analysis of the Mars and Venus incident in the *Odyssey*, which was left out of the *Iliad*.

-- *The Iron Age of Mars* (2009), a compendium of the history of catastrophes of the 8th and 7th century BC. The most noteworthy resource for that era.

David Talbott and Wallace Thornhill, *Thunderbolts of the Gods* (2005)

A first book which will tie together Saturnian and plasma information. A general introduction to the background of mythology which is the primary pointer to the events of antiquity.

-- ***The Electric Universe*** (2007)

An excellent introduction to plasma and the electricity of space, the sun, comets, and planets.

Donald Scott, *The Electric Sky* (2006)

An explanation of the electrical theory of the Sun. As an electrical engineer and astronomer, Scott knows what he is talking about, and provides a clear and readable text, also covering stars and galaxies.

Dwardu Cardona, *God Star* (2006)

Cardona here traces Gods and initial conditions of the Earth as recalled from the earliest mythological sources. He adds a vast collection of biological and geological data to support his claims for a Saturnian polar sun. Additionally, Cardona recounts the theories which have come forward in efforts to explain the Saturnian polar globe over the last 25 years, as well as attempts to account for biological and geological discrepancies.

Three additional books have followed: ***Flare Star*** (2007), ***Primordial Star*** (2009), and ***Metamorphic Star*** (2011), which continue to maintain the original thesis and expand on it.

Some Background Books

There are a hundred others, but I had to start somewhere. The following list mostly covers meta-topics -- in archaeology, astronomy, paleontology, geology, biology, history, etc. Topics like electrical engineering, field theory, statistics, atomic physics, and the associated math, are not covered, for they were part of my education. And I read all the time.

C.J. Ransom, *The Age of Velikovsky* (1976)

Ransom actually has a Ph.D. in Plasma physics, so that not only does he know what he is talking about, but he has the mindset of an engineer in being able to separate facts from pretense. The book covers the standard accepted theories as presented by Velikovsky, carries through with the expansion by others through the 1970s, and

includes the AAAS meeting of 1974 which convicted Velikovsky of scientific heresy.

Robert Bakker, *The Dinosaur Heresies* (1986)

A wonderful book; Bakker knows how to conduct research in his field. His claim is that dinosaurs were warm-blooded. He mostly dismisses the meteorite impact theory for the dinosaur extinction, and adds a few lines about the changes circa 65 million years ago which will leave you hanging.

Halton Arp, *Seeing Red* (1998)

Another researcher who knows what he is doing, Arp produces evidence of the bipolar creation of adjacent galaxies from parent galaxies. The red-shift/distance relationship is shown to be a fallacy.

Sylvanus Morley, *An introduction to the Study of Maya Hieroglyphs* (1915)

A far ranging and detailed investigation into the Maya calendar system and the glyphs involved in this. However, Morley uses the 'Morley-Spinden' correlation, which is off by three years from the use by others .

Diego de Landa, *Account of the Affairs of Yucatan* (1975 translation by A. R. Pagdan)

A comprehensive overview of the Yucatan Maya customs and beliefs. Original (not extant) consist of AD 1566 notes in Spanish, translated to French in 1864 by de Bourbourg from abstracts. This is the only contemporaneous accounts of the Maya from the 16th century.

Jared Diamond, *Guns, Germs, and Steel* (1999)

The absolute exhaustive source on the spread of agriculture, animal domestication, and languages during the Neolithic. Answers many of the questions on how and why cultures spread. See also his *Collapse* (2005) which deals with ecological issues -- very insightful and extendable to the past.

William Howells, *Back of History* (1954, 1963)

Paleolithic and Neolithic studies. The first chapter, a thorough explication of climatic conditions, is worth the price of the book alone. Wish there were an update.

Gordon Taylor, *The Great Evolutionary Mystery* (1986)

Manages to dismiss just about everything about Darwinian evolutionary theory. Historical account of controversies. Read Bakker for a differing perspective on some items.

Richard Dawkins, *The Blind Watchmaker* (1986, 1996)

A popular presentation of the case for Darwinian evolutionary theory, in contrast to the above. But arguments are too frequently from mechanical analogs.

Derek Ager, *The Nature of the Stratigraphical Record* (1973)

Questions the nature of stratigraphic dating techniques. A thick book. In *The New Catastrophism* (1993) Ager violently disputes Velikovsky's use of stratigraphic evidence. Han Kloosterman, a Dutch geologist, wrote in 1976, "It occurred to me as singularly insignificant, somewhat like a treatise on the danger of knitting-needles written during a world war." Kloosterman is one of the *et alii* of the Firestone paper of 2007.

Ian Tattersall, *The Fossil Trail* (1995)

Describes the paleontology of hominid fossils from the perspective of an insider. He has coauthored articles with Niles Eldredge (who developed the concept of 'punctuated equilibrium' with Stephen Gould). Especially interesting are the details of how the researchers remained stuck with received wisdom, and only slowly adopt new concepts.

James Shreeve, *The Neanderthal Enigma* (1995)

The European and Middle Eastern Neanderthal fossils, by a science reporter. As a science reporter, his book is eminently readable, but as inconclusive as Tattersall's. Nothing really is resolved, yet all the data is presented, generally from discussions with the researchers at the source sites. Only in the last two chapters does he attempt a resolution, but it is entirely based on applying a contemporary perspective to the remote past.

William Ryan and Walter Pitman, *Noah's Flood* (1998)

Describes the evidence bearing on the sudden flooding of the Black Sea through the Bosphorus in circa 5600 BC, and the diaspora of the mixed-farming peoples (and languages) to Europe, Asia Minor,

Mesopotamia, and Asia (the last to return on horseback a thousand years later as the speakers of Indo-European languages). Twenty years of research by them and many others.

Richard Rudgley, *The Lost Civilizations of the Stone Age* (1999)

Neolithic cultures comprehensively detailed with respect to languages, writing, medical practices, religious symbolism. A very good source which should stand your ideas of "advances" on its head.

Denise Schmandt-Besserat, *Before Writing: From Counting to Cuneiform* (1992)

Use of tokens for record keeping since 8000 BC, leading to cuneiform by 3100 BC. Amazing. But also see Gimbutas, below, for clear indications of some sort of script in the Balkans and Minoan Crete nearly two thousand years earlier.

Nicholas Osler, *Empires of the Word* (2005)

Authoritative, detailed history of human languages in their cultural settings. Very interestingly, he details why some languages last, some disappear.

Marija Gimbutas, *The Civilization of the Goddess* (1991)

Neolithic worship of the Fat Lady in the sky. European Neolithic communities, 7000 to 3500 BC. Concentrates mostly on the Balkans, Greece, and Anatolia, with imagery which carries through from Paleolithic times to the Iron Age. See also *The Goddesses and Gods of Old Europe* (1982) - with 250 illustrations. There are additional titles. Gimbutas reads a dozen European languages, and thus outdoes any other researchers in terms of an overview. Her last book is *The Living Goddess* (1999), published posthumously.

James Mellaart, *Catal Huyuk (Çatal Hüyük)* (1967)

A Neolithic city in Anatolia, with preserved murals and sculptures, a village of mixed farming and hunting people, lasting a thousand years to 6000 BC. Interesting for its bizarre symbolism, but the book probably overstates the case.

Noel T. Boaz, *Eco Homo* (1997)

Human evolution in context of ecological and environmental changes over the last 8 million years. Boaz is a field researcher,

paleoanthropologist, and theorist. Amazingly good book, carefully written.

Hannes Alfvén, *Cosmic Plasmas* (1981)

Alfvén became a heretic in rejecting the Big Bang. His explorations laid the foundation for the modern understanding of plasma physics. He was resurrected and placed in proper perspective by Eric Lerner in *The Big Bang Never Happened* (1991).

Nigel Davies, *The Ancient Kingdoms of Mexico* (1982)

Excluding the Maya, this gives a great overview of Mesoamerican history before the Spanish arrival.

Michael Coe, *The Maya* (7th ed. 2005)

An easy-to-read introduction to the Maya, from archaic beginnings through today; covers Olmecs and Guatemalan origins also. Provides much detail not found in other texts.

J. E. Thompson, *Maya Hieroglyphic Writing: Introduction* (1950)

An introduction to the Maya, their writing forms as part calendar, from the dean of Maya studies. Very readable. Note that the narrative glyphs are still completely obscure at this time.

Linda Schele and David Freidel, *A Forest of Kings* (1990)

Almost overwhelming details of religion, imagery, monuments, the personalities, and especially glyphs of the Yucatan Maya, with the period of AD 200 through AD 900 in great detail. See also *Maya Cosmos* (1993).

Dennis Tedlock, *Popol Vuh* (1996)

The best translation, with copious notes.

Charles Mann, *1491, New Revelations of the Americas before Columbus* (2006)

A comprehensive survey of the Americas before the arrival of Europeans. Mann is a science reporter, and willing to breach the 10,500 BC (10,900 BC) barrier held among US archaeologists. As a reporter he presents all sides of ongoing controversies, and presents conclusive evidence of the large population existing in the Americas before AD 1492.

Vine Delorian, *Red Earth, White Lies* (1995)

Deals with Indians in the Americas. It is mostly political, except that he makes a clear case both for why an 11,500 BC "invasion" of the Americas by Asiatics is unlikely, and why the notion is held with such tenacity. A number of other interesting topics which smack of Young Earth.

Michael Grant, *The Ancient Mediterranean* (1969)

A very readable book tracing the civilizations of the Eastern Mediterranean, Greece, and Rome to about AD 400, with an emphasis on geography and trade. Grant includes relevant data which explains much more than traditional accounts of wars and conflicts do. Best set of maps also.

Geoffrey Bibby, *The Testimony of the Spade* (1956, 1974)

Overview of European archaeology, mostly from the historical perspective of actual discoveries by the first researchers. From Altamira through Roman times. Readable, and without philosophizing. Bibby dug at Dilmun in the Persian Gulf also.

Michael Cremo and Richard Thompson, *Forbidden Archaeology* (1993)

May also be available in shorter form as *Hidden History of...* An attempt, although religiously inspired, to prove that humanity has existed forever. Some valid data and as much invalid.

S. Warren Carey, *The Expanding Earth* (1976)

The claim is that 200 million years ago the Earth was half its present diameter. This smaller Earth was completely covered by Pangea, the ancestral supercontinent. Expansion split the Earth's old crust into the present-day continents and the spaces between filled with ocean water. In *Theories of the Earth and Universe* (1988) he deals with matter being created in the center of the Earth.

I. E. S. Edwards, *The Pyramids of Egypt* (1985)

Originally published in 1950, but updated in 1971. An excellent overview of early mastabas and pyramids through the First and Second Kingdom. Descriptions, photographs, diagrams and maps, and the relationship of construction between pyramids over time.

Peter Tompkins, *Secrets of the Great Pyramid* (1971)

Tompkins traces the strange fascination with the Great Pyramid of Giza over the centuries, and the research by others, often biased by insane theories. Before reading any other book on the pyramids, check this one out. Includes a large appendix by Livio Stecchini on measurements. This book will allow you to keep your sanity through the rantings of "pyramidiots."

E. G. Richards, *Mapping Time; the calendar and its history* (1998)

A lucid book which actually makes sense of calendars and timekeeping in antiquity, set within an historical discussion. Covers the background of astronomy, naming, and counting. Calendars are shown to be needed for religious observations and tax purposes, although as always the additional claim is made that they are needed by farmers to "know when to plant." The author is not always correct, and at times vague.

Joseph Lambert, *Traces of the Past; Unraveling the secrets of Archaeology through Chemistry* (2001)

Stone, pottery, glass, and the metallurgy of bronze -- all detailed (and illustrated) with much more variety than the traditional simplifications. From Upper Paleolithic colorants through Mesopotamian beer brewing. Very good, easy to read. You will end up with a whole new appreciation for human ingenuity in the Neolithic -- the development of glazes, the variable metallurgy of bronze, the manufacture of Damascus steel.

Martin Jones, *The Molecule Hunt; archaeology and the search for ancient DNA* (1997)

Excellent book on the DNA (and other traces of organic chemicals) of the archaeological remains of plants, animals, humans, Neanderthals. Corrects many ideas about the Paleolithic and Neolithic world, development of agriculture, diets, and the migrations and relationships among populations. Notions of the "cold, barren, windswept" Beringia persist, but Indians are placed in the Americas 24,000 years ago, not just at 10,500 BC.

John McPhee, *Annals of the Former World* (1998)

A massive 700 page book on geology, as told from field trips with geologists and many anecdotes, which makes the book very readable, although you will at times be overwhelmed with the graphic details of

the movements of mountains and the local US geography. Presents both sides of the plate tectonics issue, although mostly mainstream.

Vincent H. Malmstrom, *Cycles of the Sun, Mysteries of the Moon* (1997)

The book explains where the Olmecs came from (Guatemala), the development of the 260-day and 365-day calendar, and the long count, but it is guesswork based on computational results, rather than insights on how people think. Malmstrom attempts to demonstrate the existence of solar alignments of the ceremonial centers of central Mexico, which in itself goes far beyond all attempts at understanding by archaeologists. He is a geographer.

Clive Gamble, *The Palaeolithic Societies of Europe* (1999).

Gamble discusses the last Homo erectus and the following Neanderthals in Europe who developed a method of making cutting blades by knapping pre-shaped flint nodules. This was a development which may have derived from the Acheulean hand axe. For 300,000 years the blades are consistently the same shape and size. He notes that it was the process of knapping was culturally carried forward, so that the Neanderthal mind was on the technique, not on the end product. Only this explains how the blades remain the same for such an unimaginable long time, and how no variations are ever developed. Yet despite this complete lack of imagination, the Neanderthals were effective predators and scavengers.

Gamble also presents a review of glaciations and ice cores and oceanic oxygen isotope dating. He notes that hominids (H.erectus) did not invade Europe until after 500,000 BC, and suggests a combination of the prior existence of large African predators and a very variable climate as responsible for their absence. The cats disappeared a half million years ago, but the variability of the climate in Western Europe, compared to the rest of the world, did not improve. The climate is blamed on the repeated extensive glaciation in northwestern Europe.

James Eades, Jr. *Elements of Orbital Transfer* (1965).

The mathematics has remained the same since 1925. I was interested in this because of what is known as a Hohmann transfer, which involves the use of an impulse to move a satellite from one orbit to another. Some form of this, specifically an impulse at a right angle to the original orbit, closely describes the effect of a set of electrical

repulsive and attractive forces between planets. The mathematics for this peculiar case is of course not covered, but enough is presented for a number of differing cases to provide insight into the mechanics.

Samuel Gladstone *Sourcebook On Space Sciences* (1965).

Written under sponsorship of NASA. The mechanics has remained the same: trajectories, propulsion, and guidance systems. Many satellites are described, including plasma drive. This is followed by information on the Sun and solar system planets -- which are vastly different today.

Joseph Campbell *The Hero with a Thousand Faces* (1949, 2nd edition 1968).

A rambling compilation of sources bearing on world mythology. Apparently a source book for David Talbott. He follows Campbell's general schema, but Talbott assigns Campbell's generic hero to the planet Mars. This book is also the source for the "chaos monster" (page 286, 287, and Plate XXI "Chaos Monster and Sun God"). The book makes claims to mythology as providing the "profoundest metaphysical insights," and other interpretations. Not to be neglected, this book has presented the most serious misreading of mythology.

Edward Tripp, *The Meridian Handbook of Classical Mythology* (1970)

An alphabetical listing, 600 pages, but limited to Greek and Roman. A "must-have" book to check out who did what to whom and when, and who wrote about it in the past.

Thomas Bulfinch, *Mythology* (abridged, 1959)

Absolutely the classic narrative rendering of mythology; originally published in 1855 and 1863. The abridged edition by Edmund Fuller avoids the literary allusion and examples from the 19th century which have gone stale in the 20th century. Very easy reading.

James Frazer, *The Golden Bough* (1922 in 12 volumes, 1950 abridged as one volume)

Even the one-volume edition is overwhelming. The book is subtitled "A Study in Magic and Religion." Based mainly on texts from antiquity, and communications with missionaries, Frazer leaves no stone unturned and uninspected in an effort to pinpoint human sacrifice everywhere, and kings slaughtered at the end of their term of office. But a classic nonetheless.

C. Leonard Woolley *The Sumerians* (1929).

By the excavator of Ur. A great although an inaccurate overview of Sumer. Woolley tends to be off by a thousand years in his chronology, and has frequent racist opinions. There is another book of the same name by Samuel Kramer (1963) which is much better as an overview and more technical -- detailing language and schooling, for example.

Henriette Mertz *Pale Ink* (1953).

This is a translation with added comments of two Chinese documents, *Fu-sang* of about AD 500, and the *Classic of the Eastern Mountains* attributed to the emperor Yu of 2350 BC (but more likely dating from the Shang Dynasty, 1600 to 1100 BC). Both documents are partially available in translation. The originals have been neglected by the Chinese as being overly fanciful, and by 19th century European scholars as unlikely -- for at that time the Europeans had no idea of the geography of North America, and in many instances, did not even have maps.

Mertz traces both texts geographically, including environments and distances, with amazing clarity. Most of the sixlegged animals remain unidentified (they seem to crustaceans), but outside of some really exotic elements, everything is explained, where early 19th century French scholars have remained baffled. The 1979 edition corrects about 50 spelling errors.

Hayden White *Tropics of Discourse: Essays in Cultural Criticism* (1986).

The book deals with the literary representation of facts, or of history, or of anything needing expression (as in art criticism, of course). His analysis is based on the four grand tropes of classical rhetoric. This is the second-most marked up book in my possession. An earlier resource was **Northrop Frye, *Anatomy of Criticism* (1973)**, which develops along the same lines.

Other Books Mentioned *En Passant*

(periodicals and ancient documents excluded)

Chapter 1: Introduction

- Giorgio de Santillana and Hertha von Dechend, *Hamlet's Mill: an Essay on Myth and the Frame of Time* (1977).
- Anthony Aveni, *Skywatchers of Ancient Mexico* (1980)
- James Hogan, *Kicking the Sacred Cow* (2004)
- Donald W. Goldsmith, *Scientists Confront Velikovsky* (1977).
- Carl Sagan, *Broca's Brain* (1979)
- Shane Mage *Velikovsky and His Critics* (1978)
- Edward T. Hall, *Beyond Culture* (1976)
- Alfred de Grazia, Ralph Juergens, and Livio Stecchini, *The Velikovsky Affair* (1966, 1978)
- Charles Ginenthal, *Carl Sagan and Immanuel Velikovsky* (1995)
- Eric Lerner, *The Big Bang Never Happened* (1991)
- Hilton Ratcliffe, *The Virtue of Heresy: Confessions of a Dissident Astronomer* (2007).
- Michael Gordin, *The Pseudoscience Wars and the Birth of the Modern Fringe* (2012)
- Laird Scranton, *The Velikovsky Heresies: Worlds in Collision and Ancient Catastrophes Revisited* (2012)

Chapter 2: A Synopsis

- Gary Gilligan, *An Ancient World in Chaos* (2008)
- Donald W. Patten and Samuel R. Windsor, *The Mars-Earth Wars* (1996)
- John Ackerman, *Firmament: Recent Catastrophic History of the Earth* (1996) and *Chaos: A New Solar System Paradigm* (2000)
- Julian Jaynes, *The Origin of Consciousness in the Breakdown of the Bicameral Mind* (1976)

Chapter 3: The Osiris Mystery

- Tom Van Flandern, *Dark Matter, Missing Planets and New Comets* (1999)
- Dwardu Cardona, *God Star* (2006)
- Jean Markale, *The Celts, Uncovering the Mythic and Historic Origins of Western Culture* (1978)
- Peter James, *Centuries of Darkness* (1991)
- James Hogan, *Catastrophes, Chaos and Convolutions* (2005)

Chapter 4: The Nevada Conference

- William Matthews, *Fossils* (1962)
- Peter Douglas Ward, *Gorgon: Paleontology, Obsession, and the Greatest Catastrophe in Earth's History* (2004)
- Douglas H. Erwin, *Extinction, How Life on Earth Nearly Ended 250 Million Years ago* (2006)

Chapter 5: The Absu and Speculation

- Herman Kahn, *World Economic Development: 1979 and Beyond* (1979)
- Thomas Kuhn, *The Structure of Scientific Revolutions* (1970)
- Michael Kaplan and Ellen Kaplan, *Chances Are* (2006)
- Hannes Alfven, *Cosmical Electrodynamics* (1950, 1963), and *On The Origin of the Solar System* (1954)
- J. H. Piddington *Cosmic Electrodynamics* (1969)
- Anthony L. Peratt *Physics of the Plasma Universe* (1992)
- Leonard W. King, *Legends of Babylon and Egypt* (1918)
- Joseph Lambert, *Traces of the Past* (2001)
- Richard Rudgley, *The Lost Civilizations of the Stone Age* (1999)
- Alfred de Grazia, *The Iron Age of Mars* (2009)
- Samuel Butler, *The Authoress of the Odyssey* (1922)

Chapter 6: Alternate Cosmology

- Bill Bryson, *A Short History of Nearly Everything* (2003)
- David Berlinski, *A Tour of the Calculus* (1996)
- Lynn Margulis and Dorion Sagan, *What Is Life?* (1995)
- Boyce Rensberger, *Life itself: Exploring the realm of the living cell* (1996)

Chapter 7: Ice Ages and Humans

- Clive Gamble, *The Palaeolithic Societies of Europe* (1999)
- Robin McKie, *The Dawn of Man* (2000)
- James Shreeve, *The Neanderthal Enigma* (1995)
- Charles Mann, *1491, New Revelations of the Americas before Columbus* (2006)

Chapter 8: Tunguska and Chicxulub

- Sean Carroll, *Remarkable Creatures* (2009)
- Mel Waskin, *Mrs. O'Leary's Comet* (1985)

Chapter 9: Event of the Younger Dryas

- Richard Firestone, Allen West, and Simon Warwick-Smith, *The Cycle of Cosmic Catastrophes* (2006)
- J. D. Cobine, *Gaseous Conductors- Theory and Engineering Applications* (1958)
- J. J. and G. P. Thomson *Conduction of Electricity through Gases Vol. II* (1969)
- E. J. Hellund *The Plasma State* (1961)

Chapter 10: A Timeline and Gimbutas

- Marija Gimbutas, *The Civilization of the Goddess* (1991)
- Denis Vialou, *Prehistoric Art and Civilization* (1996)
- Charles Ginenthal, *The Extinction of the Mammoth* (1997)
- Cynthia Eller *The Myth of Matriarchal Prehistory* (2000)
- Dennis Moore *North American Indian stone bird effigy; field guide, finding and identifying* (2010)

Chapter 11: Saturn and Archaeology

- Jacquetta Kawkes, *Prehistory* (1965)
- André Leroi-Gourhan, *The Art of Prehistoric Man in Western Europe* (1968)
- James Mellaart, *Catal Huyuk* (1967)
- Jean Clottes and Jean Courtin, *The Cave Beneath the Sea: Paleolithic Images at Cosquer* (1996)
- James Mellaart, et alii, *The Goddess from Anatolia* (1989)

Chapter 12: The Peratt Column

- Ralph L. Roys, *The Book of Chilam Balam of Chumayel* (1933)
- Antonio Mediz Bolio, *The Book of Chilam Balam of Chumayel* (1930) in Spanish

- Alfred Watkins, *Early British Trackways, Moats, Mounds, Camps and Sites* (1922)
- Graham Hancock, *Underworld* (2002)
- Joseph Needham, *Science and Civilization in China* (1979)
- B.H. Chamberlain (tr.), *The Kojiki* (1882)

Chapter 13: The Creation

- Bernardino Verastique, *Michoacan and Eden* (2000)
- David Talbott, *Symbols of an Alien Sky* slide presentation (1997)
- James Legge (tr.), *The I Ching* (1882)
- Wendy Doniger O'Flaherty *Hindu Myths* (1975)

Chapter 14: The Start of Time

- Bob Berman, *Cosmic Adventure* (1998)
- Ev Cochrane, *Martian Metamorphoses* (1997)
- Patrick Moore, *Venus* (2002)
- William Whiston (tr., AD 1737) Josephus, *The Antiquity of the Jews* (AD 93)
- I.E.S. Edwards, *The Pyramids of Egypt* (1972)

Chapter 15: The Era of the Gods

- William Stukeley, *Stonehenge, A Temple Restored to the British Druids* (1740)
- Jean-Pierre Mohen, *The World of Megaliths* (tr. 1990)
- Guy Davenport, *Geography of the Imagination* (1981)
- Pierre Mereaux, *Carnac: Des Pierres Pour Les Vivants* (1992),
- Roger Joussaume, *Dolmens pour les Morts* (1985?)

Chapter 16: The World Flood

- Hesiod, *Theogony* (800 BC) (Norman O. Brown tr. 1953)
- Rachel Carson, *The Edge of the Sea* (1955)
- D.A. Cyr, *Annular Space Dust* (1968)
- Zecharia Sitchin, *Divine Encounters* (1996)

- William Corliss, *Handbook of Unusual Natural Phenomena* (1977)

Chapter 17: The Gods Leave

- E. A. Budge (tr.), *The Book of the Dead* (1895)
- M. van der Sluijs, *The Mythology of the World Axis* (2007)
- H. W. E. Saggs, *Babylonians* (2000)

Chapter 18: Pyramids and Henges

- Jane Sellers, *The Death of Gods in Ancient Egypt* (1992)
- Henri Frankfort, *Ancient Egyptian Religion* (1948)
- Robert Bauval and Adrian Gilbert, *The Orion Mystery* (1994)
- H. W. E. Saggs, *Civilization before Greece and Rome* (1989)
- Kurt Mendelssohn, *The Riddle Of The Pyramids* (1974)
- Jared Diamond, *Collapse* (2005)
- Henry Adams, *Mont Saint-Michel and Chartres* (1904)

Chapter 19: The Midnight Sun

- James Ussher, *The Annals of The World* (1650)
- E. A. Budge, *Babylonian Life and History* (1925)
- Oliver Sacks, *The Man who Mistook his Wife for his Hat* (1970)
- Claude Schaeffer, *Stratigraphie comparée et chronologie de l'Asie occidentale* (1948)
- Javier Urcid, *Zapotec Writing, Knowledge, Power, and Memory in Ancient Oaxaca* (2005)
- Denise Schmandt-Besserat, *Before Writing, From Counting to Cuneiform* (1992)
- Robert Utley, *The Lance and the Shield, The life and Times of Sitting Bull* (1993)
- Lee Wilkins *The Moral Media: How Journalists Reason About Ethics* (2005)
- Moe Mandelkehr, *The 2300 BC Event* (2006)
- James Legge (tr.), *The Shu King* (1879)

Chapter 20: Noah's Flood

- E. A. Budge, *Legends of the Gods* (1912)
- Al-Sufi, *Book of fixed Stars* (AD 964)
- Alfred Tozzer, *A Comparative Study of the Mayas and the Lacandones* (1907)
- P.J. Wiseman, *New Discoveries in Babylonia about Genesis* (1936)
- D.J. Wiseman (ed.), *Ancient Records and the Structure of Genesis* (1958)
- Theophilus Pinches (tr.), *The Religion of Babylonia and Assyria* (1890)
- John Anthony West, *Serpent in the Sky* (1979)
- Plutarch, *Isis and Osiris* (AD 100)

Chapter 21: Day of the Dead

- W. T. Olcott, *Star Lore of All Ages* (1911)
- J. Gwynn Griffiths, *The Origins of Osiris and His Cult* (1960)
- Abraham Rockenbach, *De Cometis Tractatus Novus Methodicus* (1602)
- Bernadino de Sahagún, *Historia de las cosas de Nueva España* (AD 1527, tr. AD 1829)
- James Legge (tr.), *The Shu* (1879)

Chapter 22: The Exodus of Moses

- R. W. Hutchinson, *Prehistoric Crete* (1962)
- Brasseur de Bourbourg, *Sources de l'histoire de Mexique* (tr. 1860)
- S. Shastri (ed.), *The Flood Legend in Sanscrit Literature* (1950)
- John M. Barry, *The Great Influenza* (2004)
- Aris M Hobeth, *Moses in the Twelfth Dynasty Egyptian Literature* (2002)
- Donovan A. Courville, *The Exodus Problem and Its Ramifications* (1971)
- David Rohl, *A Test of Time* (1995)
- Ernst Sellin, *Mose und seine Bedeutung fur die Israelitisch-Judische Religionsgeschichte* (1922)
- A. W. Grabau, *Principles of Stratigraphy*, vol. I (1924)
- Joel T. Klein, *Through the Name of God* (2001)

Chapter 23: Destruction by Mars

- Emile Mireaux, *Les Poems Homériques et l'Histoire Grecque* (1948)
- Mircea Eliade, *Cosmos & History: The Myth of The Eternal Return* (1959)
- James Legge (tr.), *The Ch'un Ts'ew and The Tso Chuen* (1872)

- A. R. Burn, *Minoans, Philistines, and Greeks: B.C. 1400-900* (1930)
- D. Page, *History and the Homeric Iliad* (1959)
- G. Starr, *The Origins of Greek civilization: 1100-650 B.C.* (1961)
- Jonathan Swift, *Gulliver's Travels* (1726)
- Isaac Asimov, *The Kingdom of the Sun* (1960)
- Robert R. Newton, *The Origin of Ptolemy's Astronomical Tables* (1985)
- Louis Ginzberg, *The Legends of the Jews* (1928)
- S. Thompson, *Tales of the North American Indians* (1929)
- Edwin R. Thiele, *The Mysterious Numbers of the Hebrew Kings* (1965)

Chapter 24: The Tablets of Ammizaduga

- James Darmesteter (tr.), *Zend-Avesta* (1880)

Chapter 25: The Hour of Phaethon

- William Ramsay Smith, *Myths and Legends of the Australian Aborigines* (1930)
- David Brown, *Mesopotamian Planetary Astronomy-Astrology* (2000)
- Ronald Goodman, *Lakota Star Knowledge: Studies in Lakota Stellar Theology* (1990)
- S.P. Gupta and K.S. Ramachandran (ed.), *Mahabharata, Myth and Reality* (1976).
- Werner Papke, *Die Sterne von Babylon* ("The Stars of Babylon") (nd)
- James Frazer, *The Golden Bough* (1959 edition)

Chapter 26: Hezekiah and Babylon

- David Ulansey *The Origins of the Mithraic Mysteries* (1989)
- Lao-tse, *Tao-te* (circa 550 BC)
- H.G. Wells, *The Outline of History* (1961)
- Lars Wåhlin, *Atmospheric Electrostatics* (1989)
- Edward Schafer *Pacing the Void, T'ang Approaches to the Stars* (1977)
- Charles Freeman, *The Closing of the Western Mind* (2005)
- Robert Crease, *The Prism and the Pendulum* (2003)
- George Meaden, *Circles from the Sky* (1991).
- Frances FitzGerald, *Fire in the Lake* (1972)

Chapter 27: The Sibylline Star Wars

- Franz Xavier Kugler (tr.), *The Sibylline Battle of the Stars and Phaethon Seen as Natural History* (1927)
- Victor Clube and Bill Napier, *The Cosmic Serpent* (1982)
- B.L. van der Waerden, *Science awakening II: the birth of astronomy* (1974)

Chapter 28: Language and Causality

- Malcolm Gladwell, *Blink* (2005)
- Michael Gazzaniga, *Human: The Science behind What Makes Us Unique* (2008)
- Edward T Hall, *The Silent Language* (1959), *The Hidden Dimension* (1966)
- Benjamin Whorf, *Language, Thought, and Reality* (1956)
- Sun-tzu, *The Art of War* (circa 400 BC) (tr. Ralph Sawyer 1994)
- Steven Mithen, *The Singing Neanderthals* (2006)
- Tim Friend, *Animal Talk* (2004).
- Stefan Maul, *Die altorientalische Hauptstadt -- Abbild und Nabel der Welt* (1997) (tr. Thomas Lampert)
- Hollis Frampton, *Circles of Confusion* (1983)
- Edward T. Hall, *The Dance of Life*, 1983
- Steven Pinker, *The Language Instinct* (1994)

Chapter 29: The Maya Calendar

- Norman Hammond (ed.), *Mesoamerican Archaeology* (1974)

Chapter 30: The Chilam Balam Books

- Ralph L Roys (tr.), *The Book Of Chilam Balam Of Chumayel* (1933)
- Suzanne D. Fisher (tr.), Antonio Mediz Bolio *The Book Of Chilam Balam Of Chumayel* (1930, Spanish)
- Richard Luxton (tr.), *The Book of Chumayel* (1996)

Chapter 31: The Olmec Record of the Past

- Georges Ifrah, *The Universal History of Numbers* (2000)

- Nigel Davies, *The Ancient Kingdoms of Mexico* (1982)
- Mauricio Obregon, *Beyond the Edge of the Sea* (2001)
- Anthony Aveni, *Archaeoastronomy in Pre-Columbian America* (1975)
- Gerald Hawkins, *Stonehenge Decoded* (1965)

Chapter 32: Olmec Site Alignments

- Michael Coe, *The Maya* (2005)
- Ray A. Williamson (ed.), *Pre Columbian Mesoamerica Archaeoastronomy in the Americas* (1981)
- Clyde Ahmad Winters, *Atlantis in Mexico* (2005)
- Walter Krickeberg, *Mitos y leyendas de los Aztecas, Incas, Mayas, y Muiscas* (1980)

Chapter 33: The Day of Kan

- H. Osborne, *South American Mythology* (1970)
- Daniel G. Brinton, *The Annals of the Cakchiquels* (1885)

Chapter 35: The Popol Vuh

- Allen J. Christenson, *Popol Vuh: Sacred Book of the Quiché Maya People* (2003)

Appendix A: Notes on Chronology

- Umberto Eco, *Foucault's Pendulum* (1988)
- Bishop Ussher, *The Annals of The World* (1650)
- James Legge, *The Shu King* (introduction) (1879)
- S.B. Roy and K.C. Varma, *Mahabharata and Astronomy* (1976)

Appendix B: The Celestial Mechanics

- Alfred de Grazia, *The Divine Succession* (1983)
- Stephen Gould, *Ever Since Darwin* (1977)
- Zdenek Kopal, *The Realm of the Terrestrial Planets* (1979)
- J. de Costa, *The Natural and Moral History of the Indies* (1604)

- Bernadino de Sahaguán, *Historya General de Nueva España* (circa AD 1530)
- Louis Ginzberg, *The Legends of the Jews* (1928)

Appendix D: Changes in the Axis

- Alexander Thom, *Megalithic Sites in Britain* (1967)
- Alexander Thom, *Megalithic Lunar Observatories* (1970)
- Phillip Pait, *Death From the Skies* (2008)
- Robert Schoch, *Voices of the Rocks* (1999)

Appendix E: Polar Relocations Disputed

- Charles Ginenthal, *Extinction of the Mammoth* (1997)
- Charles Hapgood, *Maps of the Ancient Sea Kings* (1997)
- C. Rand and Colin Wilson, *The Atlantis Blueprint* (2002)
- C. Rand and Rose Flem-Ath, *When the Sky Fell, in Search of Atlantis* (1997)
- Charles Hapgood, *The Path of the Pole* (1999)
- Gavin Menzies, *1421: The Year China Discovered America* (2002)

Appendix F: The Palette of Narmer

- Louis A. Waddell *Egyptian Civilization, Its Sumerian origin & Real Chronology And Sumerian origin of Egyptian Hieroglyphs* (1933)

Appendix I: The Canopus Decree

- S. Birch, *Records of the Past* (1876)

Appendix J: Expanding Earth

- S. Warren Carey, *The Expanding Earth* (1976)
- S. Warren Carey, *Theories of the Earth and Universe* (1988)

Appendix K: Venus and Epidemics

- Fred Hoyle and Chandra Wickramasinghe, *Diseases from Space* (1979)

Appendix N: Age of the Universe

- Lars Wåhlin, *The Deadbeat Universe* (1997, rev. 2003)





Appendix P: Links to Saturnian Web Sites.

\$Revision: 42.4 \$ (links.php)

Links verified November 2014

[\[saturniancosmology.org/juergens.htm\]](http://saturniancosmology.org/juergens.htm)

Ralph Juergens "Reconciling Celestial Mechanics and Velikovskian Catastrophism" Pensee (1972). Find some additional articles at the *kronos-press* site, below.

[\[http://www.q-mag.org/\]](http://www.q-mag.org/)

Alfred and Anne-Marie de Grazia's Q-magazine site: Quantavolution presented as an on-line magazine. Numerous news articles and presentations, plus five years' worth of European conferences in Quantavolution.

[\[plasmacosmology.net\]](http://plasmacosmology.net)

A narrative description, including some catastrophism and mythology. A very extensive site, written in a summary, easy to read, style. The mythology follows Dave Talbott closely.

[\[plasmaresources.com\]](http://plasmaresources.com)

Another site equal in scope and general interest, run by David Smith, AU. See especially his [\[Columbia Disaster\]](http://columbia-disaster.com) site.

[\[sites.google.com/site/cosmologyquest/default\]](http://sites.google.com/site/cosmologyquest/default)

A very readable overview of cosmology and plasma theory which generally cuts across the handed-down "science" to zero-in on essentials. By Michael Suede.

[\[www.sis-group.org.uk\]](http://www.sis-group.org.uk)

Society for Interdisciplinary Studies (SIS) site. The classic site for continued attempts at straightening out the chronology of the Middle East which was first questioned by Velikovsky in the 50s and 60s. Also largely concerned with catastrophism, but almost entirely based on fugitive comets.

[\[www.plasma-universe.com\]](http://www.plasma-universe.com)

An extensive collection on plasma theory, developed and maintained as a Wiki site by Ian Tresman of Society for Interdisciplinary Studies.

[\[www.holoscience.com/\]](http://www.holoscience.com/)

Holoscience, Wal Thornhill's "Electric Universe" site. Plasma theories at planetary and galactic levels and experimental work applied to the Saturnian Theory. Working in concert with Talbott (see "Thunderbolts" below).

[\[www.velikovsky.info/\]](http://www.velikovsky.info/)

The "Velikovsky Encyclopedia" is a recent endeavor (2009) to provide resources related to the writings and ideas of Immanuel Velikovsky -- under the unique premise that both sides of the "controversy" could be presented (which in effect will go to prove Velikovsky's case). The authors and archivists write under a thin veneer of anonymity. An interesting tangle of pros and cons.

[\[www.aeonjournal.com/\]](http://www.aeonjournal.com/)

Aeon (magazine) site. A promotion of the Saturn Theory; started by David Talbott. Editors: Ev Cochrane and Dwardu Cardona. Cardona is an imaginative and convincing writer. Cochrane is a tireless researcher. This site periodically disappears off the map. Standing still since 2005.

[\[othergroup.net\]](http://othergroup.net/)

This is a collection of essays and shorter snippets mostly by others for and against alternative cosmologies. Some have no common link except as speculation. Some weird things are just outrageously funny.

[\[othergroup.net/thoth/\]](http://othergroup.net/thoth/)

Thoth Newsletter from the Kronia Magazine site -- what was a standard in promoting the Saturnian Polar Configuration. Kronia.com was discontinued 3/2010. But the complete set of the Internet publication "Thoth" can be retrieved from here (there are two other locations).

[\[ContraryBooks.Com\]](http://ContraryBooks.Com)

A listing of books in catastrophism and alternative cosmologies, and some reviews.

[\[www.kronos-press.com/\]](http://www.kronos-press.com/)

Kronos Press -- Books; and a number of articles by Ralph Juergens originally published in Kronos Magazine (and Pensee). Missing are the two articles [\["Of The Moon and Mars Part I"\]](#) and [\["Of The Moon and Mars part II"\]](#)

[\[www.thunderbolts.info\]](http://www.thunderbolts.info/)

The parent site to the current endeavors of Dave Talbott and friends. A "picture of the day" feature which always amazes, ([\[here\]](#)), plus an archive. Collected essays by other people. Promos for recent books and book series. Videos are also available on line (plus DVDs for

sale). Connection to a wide-ranging forum on matters of "plasma and electricity in space."

[\[www.electric-cosmos.org/indexOLD.htm\]](http://www.electric-cosmos.org/indexOLD.htm)

Don Scott's great explanation of plasma theories. An electrical engineer, avid astronomer, and supporter of Saturnian Theory. The link above connects to an earlier version of his book "The Electric Sky" (2006). Try also [\[www.electric-cosmos.org/index.htm\]](http://www.electric-cosmos.org/index.htm)

[\[www.mikamar.biz/\]](http://www.mikamar.biz/)

A clearinghouse for books on the Polar Configuration and Velikovskian matters, or, as they say "Products supporting Prehistoric Reconstruction and Plasma Cosmology," and including used books. A valuable resource.

[\[www.velikovskian.com/\]](http://www.velikovskian.com/) [Japanese script, hijacked 11/2014]

A journal of work stemming from the research of Velikovsky. Offers a number of books also. Charles Ginenthal (ed.), Lynn E. Rose, Gunnar Heinsohn, others. Has been standing still for a couple of years.

[\[immanuelvelikovsky.com/\]](http://immanuelvelikovsky.com/)

A site featuring the books of Ginenthal in pdf format, including all four issues of *Pillars of the Past*.

[\[www.metaresearch.org\]](http://www.metaresearch.org)

Tom Van Flandern, of *Dark Matter, Missing Planets and New Comets* (1999) fame. Van Flandern is an astronomer, with interesting theories on planet formation, and other topics approaching the catastrophic from a mechanical (gravitational) point of view.

[\[www.haltonarp.com/\]](http://www.haltonarp.com/)

Galactic red-shift and recession. See the book list.

[\[www.science-frontiers.com\]](http://www.science-frontiers.com)

"Strange Science, Bizarre Biophysics, Anomalous Astronomy" -- from the pages of the world's scientific journals -- always interesting reading.

[\[www.maverickscience.com\]](http://www.maverickscience.com)

Ev Cochrane's website (editor at Aeon). Includes some of his outstanding articles.

[\[www.catastrophism.com/\]](http://www.catastrophism.com/)

Actually a CDROM offering of past literature on the subject.

[\[plasmauniverse.info\]](http://plasmauniverse.info)

Material by Anthony Peratt of Experimental Programs at Los Alamos National Laboratory. Peratt is one of the world's leading pioneers in plasma physics and plasma cosmology. Peratt's papers on the

petroglyphs and the south polar plasma column are located here at this site, but hard to ferret out.

Look under NearEarth.html for

- A. L. Peratt, *Characteristics for the Occurrence of a High-Current, Z-Pinch Aurora as Recorded in Antiquity*
- A.L. Peratt, J. McGovern, A.H. Qöyawayma, M.A. Van der Sluijs, and M.G. Peratt, *Characteristics for the Occurrence of a High-Current, Z-Pinch Aurora as Recorded in Antiquity, Part II: Directionality and Source.*

[www.the-electric-universe.info]

Electric Universe -- another view. Site of Hungarian physicist Laszlo Koertvelyessy.

[www.varchive.org]

The Velikovsky archive of unpublished documents by Jan Sammer.

[<http://www.earth-history.com>]

A site of L.C. Geerts which includes a great number of Sumerian and Akkadian source documents. Geerts follows Sitchin.

[www.mythopedia.info/]

Marinus van der Sluijs's Mythopedia -- originally based entirely on the image and story evidence of a Polar Configuration, but now given over to an auroral plasma to explain all celestial phenomena of remote antiquity. Very professional, very verbose, but it is a book (or books) in progress.

[www.bearfabrique.org]

Ted Holden's site which discusses the improbability of dinosaurs being able to move and live with the gravity we experience today. Nice article on the flight capabilities of prehistoric birds. Large collection of other source material. A few political items.

[www.grazian-archive.com]

Alfred de Grazia's writings. Everything is in pdf as complete books. *Chaos and Creation* more or less (more less than more) parallels these pages, except for its Young Earth basis. Totally engaging, is *God's Fire*. This is the story of Moses and the Exodus (1500 BC). Among other things, he reviews works by every biographer of Moses since antiquity, the operation of the Ark, the organization of the camps, the details of the whole migration, the electrical tricks of Moses, his interaction with Yahweh, and the character and psychology of Moses. See the Appendix "List of Books" for more.

[\[http://sites.google.com/site/dragonstormproject\]](http://sites.google.com/site/dragonstormproject)

by Dennis Cox: "Recent impact evidence in the Americas. Extensive, map-based graphics." Molten mountaintops and ridges: Cox has investigated altered landforms, attributed by him to the event at the start of the Younger Dryas. Cox adds burn marks due to Mars in the 8th and 7th century BC in northern Mexico.

[\[http://www.eu-geology.com/\]](http://www.eu-geology.com/)

Michael Steinbacher, a photographer, has been investigating the western landscape for a number of years in light of the alternative cosmology of catastrophic elements of the Electric Universe adherents. As a photographer, Steinbacher sees things we do not see.

[\[http://www.emmetsweeney.net/\]](http://www.emmetsweeney.net/)

[Link dead 8/2014, but try Amazon.com] Emmet Sweeney, author of some eight books on alternative cosmological detail, mainly based on Velikovsky and Gunner Heinsohn. Sweeney takes exception to both. See especially the four book series "Ages in Alignment" which proposes a world history not unlike this one. Sweeney proposes that an initial contact with Venus produced the world flood. He also places most dates much later.

[\[http://www.creationism.org/patten/PattenMarsEarthWars/index.htm\]](http://www.creationism.org/patten/PattenMarsEarthWars/index.htm)

Donald W. Patten and Samuel R. Windsor, authors of *The Mars-Earth Wars* (1996), which may be found here. This is a well-written piece about the intersection of the orbit of Earth and Mars up to the beginning of the 8th century. The authors are physical scientist and engineers, making their theories a little more solid.

[\[http://www.firmament-chaos.com\]](http://www.firmament-chaos.com)

John Ackerman, *Firmament: Recent Catastrophic History of the Earth* (1996) and *Chaos: A New Solar System Paradigm* (2000) establishes the repeated meetings of Earth and Mars (and Venus) primarily from Vedic sources. Ackerman is a physicist.

[\[www.gks.uk.com\]](http://www.gks.uk.com)

Promotes the book *An Ancient World in Chaos* (2008) by Gary Gilligan with a dozen synoptic pages from its contents. An analysis of Egyptian iconography, refreshingly direct and unpretentious, which assigns the Gods of Egypt to the known planets and Hathor to an equatorial ring system. I do not agree with his assignment of Gods to planets, or the celestial mechanics.

[\[www.saturnian.org/\]](http://www.saturnian.org/)

Saturnian Org. Standing still for a decade -- broken links and a few papers posted.

[\[www.julianjaynes.org/\]](http://www.julianjaynes.org/)

Julian Jaynes society. Additional articles, books.

[\[www.pibburns.com\]](http://www.pibburns.com)

Philip Burns: Velikovsky, catastrophe, meteors, Venus transits and the flu. Exceptions to Velikovsky and the Saturnian model.

[\[www.tim-thompson.com\]](http://www.tim-thompson.com)

Another site which argues against the Saturnian model. This by the astrophysicist Tim Thompson. Good, except when it is about Tim Thompson.

[\[www.expanding-earth.org\]](http://www.expanding-earth.org)

A starter site by Lawrence Myers based on S. Warren Carey's theory of an expanding Earth. See also [\[Expanding Earth Theories\]](#). (And as many debunkings.)

recent additions...

[\[sumerian.org\]](http://sumerian.org)

John Halloran's in depth site on Sumerian. Great.

[\[LostWorldForum.org\]](http://LostWorldForum.org)

Andrew Fitts, "A forum for the discussion of the work of Jno Cook, which extends the work of David Talbott, Wal Thornhill, Ev Cochrane, Dwardu Cardona, and Immanuel Velikovsky."

[\[http://www.planetamnesia.com/\]](http://www.planetamnesia.com/)

Andrew Fitts's site exploring Cultural Amnesia. Extensive, key concepts, and a no-hold-barred FAQ. Supports the reasoning of this site, Saturniancosmology.org ("Recovering the Lost World").

[\[http://mythsarehistory.com/\]](http://mythsarehistory.com/)

Julian West's site exploring myths. An incomplete chronology, but a great encyclopedia of images from diverse sources. See also <http://www.facebook.com/mythsarehistory>.

[\[tiki-toki.com/timeline/entry/250694\]](http://tiki-toki.com/timeline/entry/250694)

A time line of events by Kim Gibson, presented in graphical form with various features for viewing.



Appendix Q: Change Log.

\$Revision: 42.3 \$ (chlog.php)

Contents of this webpage: [\[Introduction\]](#) [\[2005\]](#) [\[2006\]](#) [\[2007\]](#) [\[2007 narrative\]](#) [\[2008\]](#) [\[2008 narrative\]](#) [\[2009\]](#) [\[2009 narrative\]](#) [\[2010\]](#) [\[2010 narrative\]](#) [\[2011\]](#) [\[2012\]](#) [\[2013\]](#) [\[2014\]](#) [\[2015\]](#)

Introduction

In March 2005 I had thought that this site had mostly reached completion, but it has been under constant minor edits, and at times prone to sudden inspirational revisions. Considerable material has been added. (Some items listed as "chapters" below were called "appendixes" and after August 2009 reverted to being labeled as "chapters" again.)

New material is usually a simple inspiration which clarifies or substantiates statements which had previously been covered with hand-waving phrases like, "probably" and "seems likely," but also includes things I hadn't had time to think about earlier, plus rephrasings, concept corrections, and a few new data points. The "few new data point" includes a line-by-line analysis of the *Chilam Balam* and the *Popol Vu*, plus a revealing analysis of Mesoamerican site alignments.

Additionally, my editor Claudia George has stopped me at every mangled sentence, questioned each loosely tossed factoid, tripped me repeatedly on logic, forced me to explain every technical term ("Perihelion, what's that?"), and had me date every event from the remote past. And she can spell. I have additionally had the benefit of word editing by Danford Vander Ploeg and Kevin Wider.

Below is a list of changes and additions from 2005 through 2013.

Change Log Since April 2005

In April 2005:

- Some notes added on the world mountain;
- notes on the start of literature;

- notes on the later start of philosophy;
- source of the *Hab-Sed* festival;
- notes on Lepenski Vir.

In May 2005:

- Added alternative catastrophic narratives;
- note on orbital precession;
- fixed a logical glitch with Jaynes;
- added Seneferu's pyramids and dates;
- notes on *Canopus Decree*;
- fixed the change in the polar axis location in 685 BC;
- fixed plasma energy estimates;
- changed the age of the Earth;
- fixed some chronology.

In June 2005:

- Changed analysis of the Kings List;
- added notes on Mercury;
- patriarchs after Noah;
- notes on Bible parallels;
- extended nova events into the Permian.

In July 2005:

- Added notes on *Comet Tempel 1*;
- corrected the *Age of the Universe*;
- moved some text references up a thousand years;
- added Jaynes notes on the start of religions;
- extended the long-range chronology;
- rewrote Kings List for Kish;
- rewrote radiometric dating;
- added crustal composition.

In August 2005:

- Corrected the first approach of Horus;
- added Chinese parallels.

In September 2005:

- Added "two months later" to *Tempel 1* comments;
- added a note on the SNC meteorites.

In October 2005:

- Added some notes on the Mahabharata;
- added and corrected ephemeris info of *Canopus Decree*;
- updated estimated shift of the equinox in 685 BC;
- added notes on the *Spring and Autumn Annals*.

In November 2005:

- Added notes on the "Zohar" and the "Soo Chow" chart;
- rewrote the changes for 685 BC;
- recalculated energy of the plasma stream.

In December 2005:

- Added notes on Hindu parallels;
- note on late barrows and henges;
- added page-bottom navigation;
- revised the visibility of the cloudbank.

Change Log for 2006

In January 2006:

- Added comments to the *Other Cosmologies* page;
- added notes on the *Sibylline Star Wars* page;
- added more references to the flare-up of Venus;
- added a note on Narmer.

In February 2006:

- Added a section on predynastic Egypt;
- added endnotes on the blisters of Mars;
- corrected some notes on the lifetime of Thoth;
- added planetary inclinations and eccentricities;
- reworked ephemeris information;
- expanded comments on *Canopus Decree*;
- added a list of first and second dynasty dates.

In March 2006:

- Rewrote the *Sibylline Star Wars* page;
- expanded *Venus and Epidemics* page;
- added orbit diagrams to *Mechanics* page;
- rewrote the *Canopus Decree* page;
- rewrote notes on intervals of the *Chronology* page;

- corrected the ascension of Shamash-shum-ukin in 668 BC;
- moved half of *Quetzalcoatl* to *History* page;
- started making page-to-page links.

In April 2006:

- Rewrote "A Change of the Equinox," *History* page;
- added some calendar notes;
- added references to Phaethon in three places;
- reformatted files for single floppy access;
- rewrote *Canopus Decree* page;
- "Predynastic Kings of Egypt" to a separate page.

In May 2006:

- Moved return of Mars up 25 years, *Chronology* page;
- note on conservation of KE, *Mechanics* page;
- dates for 6th century religions, *History* page;
- notes on the Chilam Balam, *Quetzalcoatl* page;
- notes on the Eye of Ra, *Polar Sun* page;
- notes on the "Iliad," *Language* page;
- synodical period of Venus before 747 BC.

In June 2006:

- Updated Maya calendar, *Chronology* page;
- started *Chilam Balam* chapter.

In July 2006:

- Found start of Long Count in 747 BC, *Chronology* page;
- endnote on Olmec Jaguar Babies added.

In August 2006:

- Mesoamerican alignments added, *Chronology* page;
- Katun 11-Ahau found at 747 BC, *Chilam Balam* page;
- set a starting date for the *Sibylline Star Wars*;
- described the switch from arc to glow mode, *Polar Sun* page;
- added Jupiter as the Midnight Sun, *Gilgamesh* page;
- added capture of the Moon, *Introduction* page;
- added four Mesoamerican ages of the world, *Chronology* page;
- completed the *Chilam Balam* page;
- rewrote sections of the *Chronology* page;

- rewrote sections of the *Mechanics* page;
- moved part of *Mechanics* page to main text.

In September 2006:

- Moved 3 appendix pages to main narrative;
- rewrote "sub-polar" text of *Saturn* page.

In October 2006:

- Comments on Brown's Assyrian astrology, *History* page;
- notes on Mul.Apin, legs of Ursa Major, fragrances;
- notes on Teotihuacan, start of Haab in 1400 BC;
- additional notes on *Chilam Balam* page;
- V's use of the "three paths of the Sun" disputed;
- expanded notes on Maya calendar, *Chronology* page;
- notes on five legendary emperors of China, *Chronology* page;
- added note on the river Styx, *Gilgamesh* page;
- added the darkness to the initial chaos, *Polar Sun* page;
- tied down the capture of the Moon, *Gilgamesh* page;
- added the Absu and Duat, *Gilgamesh* page;
- added Jupiter as the Red Morning Star, *Gilgamesh* page;
- added how the skies looked at creation, *Polar Sun* page.

In November 2006:

- Added Uranus to the Narmer palette, *Chronology* page;
- *House of Seven Bushes* as the Absu, *Chilam Balam* page;
- fall of the Absu as Noah's flood added, *Moses* page;
- doorway to the Underworld added, *Moses* page;
- removed non-orbital information, *Mechanics* page;
- added planetary stability note, *Mechanics* page;
- identified Yao and Shun, *Chronology* page;
- added start of Re's coma, *Chilam Balam* page;
- further notes on flood of 3147 BC, *Gilgamesh* page;
- reconsidered the burning tower incident, *Moses* page;
- added extinction of Jupiter, *Moses* page;
- corrected search utility; added URLs, updates, page sizes.

In December 2006:

- Plutarch quoted on Jupiter, *Gilgamesh* page;
- estimates of the coma of Jupiter, *Noah* page;
- corrected date of Tower of Babel, *Noah* page;

- the raven and the dove, *Noah* page;
- sorted out the 24th century, *Noah* page;
- the sedge and the bee, the two ladies, *Chronology* page;
- adding a list of new findings, *Index* page;
- expanded crash of 3147 BC, *Mechanics* page;
- added Naram-Sin's stele *Moses* page.

Change Log for 2007

In January 2007:

- Shadow on Absu found, *Noah* page;
- estimates on the size of the Absu, *Gilgamesh* page;
- more on the Acheulean hand axe, *Ice Age* page;
- Noah's ark and Ra icon added, *Gilgamesh* page;
- Enuma Elish information added, *Gilgamesh* page;
- Tiamat identified, *Gilgamesh* page;
- darkness and the cold, *Ice Age* page;
- Saturn in the Lower Paleolithic, *Ice Age* page;
- the career of Jupiter, *Mechanics* page;
- *long range chronology* to separate page;
- expanded axial inclinations, *Introduction* page;
- vertical separation in 3147, *Mechanics* page;
- Mul.Apin ecliptic notes, *History* page;
- added a synopsis, this page;
- started analysis of Palermo Stone, *Noah* page.

In February 2007:

- Split Jupiter's career from the *Moses* page;
- details of Jupiter's travels, *Jupiter* page;
- corrected vertical separation in 3147 BC, *Mechanics* page;
- added appearance of the "shen," *Jupiter* page;
- updating Jupiter's coma, various pages;
- added Seven-Macaw, *History* page;
- redid diagram of asteroid belt, *Jupiter* page;
- revised predynastic kings, *Chronology* page;
- added Hathor's bloodbath, *Jupiter* page;
- moved the Tower of Babel to the *Jupiter* page.

In March 2007:

- Rewrote the era of 2400 - 2300 BC, *Chilam Balam* page;
- rewriting "Archaeology" and "Lascaux," *Ice Age* page;
- added "In the Shadow of Saturn" to *Ice Age* page;
- added the Hypsithermal to *Ice Age* page.

In April 2007:

- Revised ice core notes, *Ice Age* page;
- added Catal Huyuk notes to *Archaeology* page;
- some notes added, *Chilam Balam* page;
- some notes added, *Chronology* page.

In May 2007:

- Context for *Canopus Decree* page;
- Split Part 4 to Parts 4 and 5;
- February 26 /28 glitch addressed;
- Edzna and Teotihuacan latitudes added.

In June 2007:

- Temple of the Hyperboreans added;
- congruence of axial tilts to text, *Cosmology* page;
- moved "Saturn in the Paleolithic" to *Mechanics* page;
- analysis of asteroid belt gaps, *Mechanics* page;
- location of Jupiter before 3147 BC, *Mechanics* page;
- recalculated vertical separation, *Mechanics* page;
- rotation of spin axes about Sun's axis, *Cosmology* page;
- Heinrich layer H1 added to Ginenthal, *Ice Ages* page;
- Jupiter during the ice ages, *Ice Ages* page;
- rewrote *Ice Ages* page.

In July 2007:

- Rewrote "Catal Huyuk" of *Archaeology* page;
- rewrote "Lascaux" of *Archaeology* page;
- delete "Archaeological Periods" from *Archaeology* page;
- changed "page" for "chapter" or "appendix";
- added the Maya road in the sky, *Jupiter* chapter;
- added James Hogan's essay, *Introduction* chapter;
- revised external field of plasmaspheres, *Saturn* chapter;
- removed parallel histories from *Chronology* appendix;
- moved Precambrian back to *Chronology* appendix;
- corrected vertical separation chart, *Mechanics* chapter.

In August 2007:

- Calendars notes added to *Chronology* appendix;
- corrections to *Mechanics* appendix;
- extended endnote on the barmaid, *Chronology* appendix;
- added 280/273 day year, *Jupiter* chapter;
- date corrections, *Chilam Balam* appendix;
- book titles added, *Books* page;
- Roman calendar notes, *Quetzalcoatl* chapter;
- some additions to *Deep Impact* appendix;
- baptism of nine bushes dated, *Chilam Balam* appendix;
- 21st century updated, *Jupiter* chapter;
- second Bolon Dzacab located, *Chilam Balam* appendix;
- inner planet lockout in 3147 BC, *Mechanics* appendix;
- rotational momentum and charge, *Mechanics* appendix;
- added Maruts to *Archaeology* chapter;
- moved parallel histories back to *Chronology* appendix;
- note on black Kali, *Jupiter* chapter;
- wave movement in the Absu, *Polar Sun* chapter;
- electrical changes in spin rate, *Mechanics* appendix;
- axial tilt before 685 BC, *History* chapter;
- February 26 and 28 note, *Quetzalcoatl* chapter;
- expanded the zip file to include the appendixes.

In September 2007:

- New graphics to *Archaeology* chapter;
- C14 corrections, *Chronology* appendix;
- Neptune added, *Archaeology* chapter;
- New introduction, *Archaeology* chapter;
- 30,000-year record of Saturn, *Archaeology* chapter;
- Mesoamerican sun-ages defined, *Maya Calendar* appendix;
- day of Kan of the "second baptism," *Chilam Balam* appendix.

In October 2007:

- Electrical considerations, *Middle Kingdom* chapter;
- revised page-end navigation.

In November 2007:

- Menes identified, *Chronology* appendix;
- inner-orbit corrections, *Mechanics* appendix;
- orbital changes defined, *Mechanics* appendix;

- orbital inclinations defined, *Mechanics* appendix;
- change in axial inclination, *Mechanics* appendix;
- changed and added graphics, *Mechanics* appendix;
- orbital interactions details, *Mechanics* appendix;
- changed plasmoids to plasmaspheres, systemically;
- rewrote parts of *Polar Sun* chapter;
- mirrored files updated, 3804 items;
- axial torque reaction added, *Mechanics* appendix;
- crossed orbits added, *Mechanics* appendix;
- some images corrected, *Mechanics* appendix;
- Moon's orbit inclination corrected, *Cosmology* chapter.

In December 2007:

- Cretan chronology endnote corrected, *Moses* chapter;
- 8th-century eclipses discussed, *History* chapter;
- SNC separation dates, *Chronology* appendix;
- early Mars orbit correction, *Mechanics* appendix;
- ten degrees of the shadow added, *Mechanics* appendix;
- Mercury as agent in 686 BC, *Mechanics* appendix;
- latitude of Babylon, *History* chapter;
- Coyote and the mouse in 686 BC, *Quetzalcoatl* appendix;
- spin axis inclination since 3147 BC, *Mechanics* appendix;
- changed 680 BC to 685 BC, systemically;
- plasmoid from Jupiter in 685 BC, *Star Wars* appendix;
- plasmoid from Jupiter in 685 BC, *Chilam Balam* appendix;
- plasmoid from Jupiter in 685 BC, *Mechanics* appendix;
- rewrote *Polar relocations* file;
- the bull of heaven added, *Gilgamesh* chapter;
- Olmec 8-degree alignments, *Maya Calendar* appendix.

Narrative for 2007

In January 2007 I looked through the records of the Palermo Stone, a partial Egyptian yearly record of the dynasties up to the fifth, 3050 BC to 2550 BC, for indications of travels of Mars across Earth's orbit.

In February 2007 I traced Jupiter's travels through the asteroid belt and beyond, and matched its reputation as a God up to 2200 BC.

In June 2007 I wrote up the implications of the shifts in climatic zones suggested by the Hypsithermal period.

As of September, 2007, I started to change statements and diagrams about orbital interactions, since electrical effect could fully account for all the changes in orbits.

Late in November, 2007, I calculated the earlier perihelion and aphelion of Earth and Venus, and needed to correct what I said about non-overlapping orbits.

In December, 2007, I finally localized the Earth shock of 686 BC as March 23, 686 BC, and due to Mercury. At the same time I suddenly became aware of the date of the thunderbolt of Zeus in 685 BC which the Maya *Chilam Balam* claims as July 25, Gregorian.

Change Log for 2008

In January 2008:

- Izapa alignment, *Olmec Alignments* appendix;
- Edzna alignments, *Olmec Alignments* appendix;
- Monte Alban April 2 alignment, *Olmec Alignments* appendix;
- Jupiter plasmoid of July 26, *Mechanics* appendix;
- sun.bas corrected, *Olmec Alignments* appendix;
- circular reasoning removed, *Star Wars* appendix;
- "dire wrath of the Moon," *Star Wars* appendix;
- corrected 686 BC Mercury contact, *Mechanics* appendix;
- Tun 9 to Tun 4, *Chilam Balam* appendix;
- Jupiter plasmoid size estimates, *Mechanics* appendix;
- Jupiter as the tree of the center, *Chilam Balam* appendix;
- Teotihuacan alignment, *Alignments* appendix;
- San Lorenzo narrative, *Alignments* appendix;
- the Sun not a God, *Olmec Alignments* appendix;
- the Sun returns at San Lorenzo, *Olmec Alignments* appendix;
- the giant heads of San Lorenzo, *Olmec Alignments* appendix;
- the giant heads of La Venta, *Olmec Alignments* appendix;
- removed "Olmec Alignments" from *Maya* appendix;
- changed "Saturnian Cosmology" to "Recovering the Lost World";
- no solstitial alignments, *Olmec Alignments* appendix;
- stuttering of Jupiter, *Jupiter* chapter;
- appearance of Apep added, *Jupiter* chapter;

- maize surpluses, *Olmec Alignments* appendix;
- travel of Jupiter plasmoid, *Olmec Alignments* appendix;
- Head section Base Href URI added (finally);
- maps and plats added, *Olmec Alignments* appendix;
- Exodus date disputed, *Olmec Alignments* appendix;
- Caloris basin of Mercury, *Mechanics* appendix;
- plasmoid scepter illustrations, *Mechanics* appendix;
- planets in the 8th century, *Mechanics* appendix;
- Mercury in the 8th century, various pages;
- trees sorted out, *Chilam Balam* appendix;
- day of Kan detailed, *Chilam Balam* appendix;
- green Osiris, *Chilam Balam* appendix;
- changed title, *Olmec Alignments* appendix;
- ballcourt dates, *Olmec Alignments* appendix;
- 8th BC Mars visits corrected, *Mechanics* appendix;
- four mighty demon bats, *Chilam Balam* appendix;
- San Lorenzo alignments, *Alignments* file;
- La Venta alignments, *Alignments* file;
- Laguna De Los Cerros alignments, *Alignments* file;
- Tres Zapotes alignments, *Alignments* file;
- Cerro de la Mesas alignments, *Alignments* file;
- Remojadas alignments, *Alignments* file;
- Zempoala alignments, *Alignments* file;
- Tlatilco alignments, *Alignments* file;
- Tizatlan alignments, *Alignments* file;
- Cuicuilco alignments, *Alignments* file;
- Tlapacoya alignments, *Alignments* file;
- Cholula alignments, *Alignments* file;
- the day of Kan, *Olmec Alignments* appendix;
- Long Count corrected, *Chilam* appendix;
- antipodal alignments marked, *Alignments* file.

In February 2008:

- Moved appendixes to chapter headings;
- corrected La Venta alignments, *Alignments* file;
- summary of alignments, *Olmec Alignments* chapter;
- Monte Alban calendar conversion, *Olmec Alignments* chapter;
- correction for Don Scott's broken link;
- climatic periods added, *Archaeology* chapter;
- validity of the data, *Olmec Alignments* chapter;

- alignment diagrams, *Olmec Alignments* chapter;
- 8th-century lightning bolts, *Quetzalcoatl* chapter;
- Olmec site primacy, *Olmec Alignments* chapter.

In March 2008:

- Started *Popol Vu* chapter;
- the period of the may, *Olmec Alignments* chapter;
- third conquest, *Olmec Alignments* chapter;
- notes from Hall and Whorf, *Language* chapter;
- Caloris basin diameter updated, *Mechanics* chapter;
- Ten Suns of Li added, *Jupiter* chapter;
- sequence of events for 2349 BC, *Jupiter* chapter;
- Day of the Dead added, *Jupiter* chapter;
- return of the Axis Mundi, *Gilgamesh* chapter;
- Sirius as plumb bob, *Mechanics* chapter;
- return of the Axis Mundi, *Jupiter* chapter;
- sequence of events for 1492 BC, *Moses* chapter;
- return of the Axis Mundi, *Moses* chapter;
- Babylon latitude recalculated, *History* chapter;
- alignments corrected, Pleiades added, *Alignments* page;
- 13 and 18 degrees added, *Olmec Alignments* chapter;
- Pleiades settings added, *Olmec Alignments* chapter;
- list of date sources added, *Olmec Alignments* chapter;
- Day of the Dead, *Chilam Balam* chapter.

In April 2008:

- Moon's effect on precession, *History* chapter;
- year to 366 days, *Chronology* chapter;
- plasmasphere interaction diagrams, *Mechanics* chapter;
- ten degrees of Isaiah, *Mechanics* chapter;
- Peratt south pole petroglyphs, *Archaeology* chapter;
- corrected axial relocation path, *Mechanics* chapter;
- Peratt column diagrams, *Archaeology* chapter;
- colonization of Pacific islands, *Archaeology* chapter;
- darkness before the Chaos, *Ice Ages* chapter;
- the opossum brings the year, *Archaeology* chapter;
- revised Peratt column copy, *Archaeology* chapter;
- revised Peratt column diagrams, *Archaeology* chapter;
- cup and tail marks returned, *Archaeology* chapter;
- red Sirius and location of Apep, *Jupiter* chapter;

- survey of the Maya lands, *Archaeology* chapter;
- reconsidered rotation of Venus, *Quetzalcoatl* chapter.

In May 2008:

- Notes on speculation, *Cosmology* chapter;
- dropped April 2, 2349 BC, *Olmec Alignments* chapter;
- dropped April 2, 2349 BC, *Alignments* page;
- Soconusco heads added, *Olmec Alignments* chapter;
- sequence for Venus nova, *Quetzalcoatl* chapter;
- Jupiter plasmoid, *Quetzalcoatl* chapter;
- July 25, 685 BC, *History* chapter;
- June 14, 685 BC, *History* chapter;
- June 9, 685 BC, *History* chapter;
- planets in the 8th century BC, *Quetzalcoatl* chapter;
- rewrote with new dates, *Star Wars* chapter;
- Monte Alban data added, *Alignments* file;
- three inclusive interval counts, *Chilam Balam* chapter;
- 40 days for the 685 BC nova event, *Quetzalcoatl* chapter;
- Hermes's gamble corrected, *Chronology* chapter;
- the "may" at San Lorenzo, *Olmec Alignments* chapter;
- the "may" at Monte Alto, *Olmec Alignments* chapter;
- the "may" at Tres Zapotes, *Olmec Alignments* chapter;
- the "may" at La Venta, *Olmec Alignments* chapter;
- ballcourt dates of Yaxchilan, *Olmec Alignments* chapter;
- the "may" at Monte Alban, *Olmec Alignments* chapter;
- "Popol Vu" book sources, *Olmec Alignments* chapter;
- the "may" at Teotihuacan, *Olmec Alignments* chapter;
- added Ku-Bau to *Jupiter* chapter;
- 52-year Venus cycle, *Mechanics* chapter;
- earlier orbits of Venus, *Mechanics* chapter;
- the "may" at Tula, *Olmec Alignments* chapter;
- the "may" at Cholula, *Olmec Alignments* chapter;
- 365.88 dropped as unsustained, *Chronology* chapter;
- rewrote Canopus decree, *Canopus* file.

In June 2008:

- Expanded synopsis, *Index* page;
- Canopus Decree rewrite, *Canopus* file.

In July 2008:

- Added Dave Smith link, *Links* and *Index* page;
- "Survey of the world" mostly to *Chilam Balam* chapter;
- Carnac alignments to Peratt column, *Archaeology* chapter;
- Zodiacal light source, *Gilgamesh* chapter.

In August 2008:

- Birds of the world trees, *Chilam Balam* chapter;
- Axis Mundi manikin in Akkadian seal, *Jupiter* chapter.

In September 2008:

- Split up *Chilam Balam* chapter, creating *Olmec Record*;
- "First Creation" expanded, *Olmec Record* chapter;
- "Survey of the world" to *Olmec Record* chapter;
- "Third Creation" to *Olmec Record* chapter;
- annual Axis Mundi recorded, *Archaeology* chapter;
- year glyph as annual Axis Mundi, *Gilgamesh* chapter;
- "First Creation" time line, *Olmec Record* chapter;
- removed BASE HREF from head section;
- reordered *other files*;
- monthly stats script added;
- repaired the search and find scripts;
- rewrote *Canopus Decree* file;
- electrical balance in a plasmasphere, *Ice Ages* chapter;
- electrical repulsion as an impulse, various chapters;
- three-cornered precious stone, *Olmec Record* chapter;
- three generations augmented, *Olmec Record* chapter;
- the endless night, *Olmec Record* chapter;
- the six winds, *Olmec Record* chapter;
- Bolay of the three stones, *Olmec Record* chapter;
- Chac the giant, *Olmec Record* chapter;
- one stone, fire created, *Olmec Record* chapter;
- angels of the rings, *Olmec Record* chapter;
- the stone, the dragon, the wheel, *Olmec Record* chapter;
- Chac Bolay Balam, *Olmec Record* chapter;
- creation of the world, *Olmec Record* chapter;
- destruction of the Sun, *Olmec Record* chapter;
- changed Wacan Chan reading, *Chilam Balam* chapter;
- Copan "Nine Successions" tree, *Gilgamesh* chapter.

In October 2008:

- Book 1 of the *Popol Vu* chapter;
- the four lights, *Chilam Balam* chapter;
- the Maelstrom, *Gilgamesh* chapter;
- Mercury in the ballgame, *Quetzalcoatl* chapter;
- Maya site primacy, *Olmec Alignments* chapter;
- Peratt Column for Lepinski Vir, *Archaeology* chapter;
- removed Tower of Babel to separate file;
- the star in the crescent, *History* chapter;
- cities before the flood, *Chronology* chapter;
- 52 year cycle correction, *Mechanics* chapter;
- "may" chart corrections, *Olmec* chapter;
- ballcourt dates of Yaxchilan updated, *Olmec* chapter;
- Book 2 of the *Popol Vu* chapter.

In November 2008:

- Gary Gilligan's site, *Other Cosmologies* files;
- the double axe, *History* chapter;
- Heart of Sky as Peratt plasmoids, *Archaeology* chapter;
- added M Gmirkin's link list, *Index* page;
- Geb located, *Archaeology* chapter;
- Copan ballcourt markers, *Popol Vu* chapter;
- 751 BC corrected, *Mechanics* chapter;
- torch and cigars, *Popol Vu* chapter;
- Hephaestus identified, *Quetzalcoatl* chapter;
- catfish in the river, *Popol Vu* chapter;
- Book 3 completed, *Popol Vu* chapter;
- Moon's axial inclination dropped, *Cosmology* chapter.

In December 2008:

- De Grazia's notes on Homer, *Quetzalcoatl* chapter;
- nine grindings of corn, *Popol Vu* chapter;
- Lepenski Vir rewrite, *Archaeology* chapter;
- Basque Mari added, *Archaeology* chapter;
- Book 4 completed, *Popol Vu* chapter;
- Book 5 completed, *Popol Vu* chapter;
- Peratt Column graphics updated, *Archaeology* chapter;
- Mars contacts expanded, *Quetzalcoatl* chapter;
- Mercury on Mars orbit, *Quetzalcoatl* chapter;
- celestial twins, *Quetzalcoatl* chapter.

Narrative for 2008

In January, 2008, I started to look at alignments of Mesoamerican ceremonial centers. I adapted a **QBasic** computer program to resolve azimuth horizon angles of sunrises and culminations as a function of calendar dates, axial alignment, and latitude. The Olmecs were clearly aware of the Earth shock of April 19, 1492 BC (Exodus) and February 28, 747 BC (Era of Nabonassar). Both show up clearly, first at the oldest sites. All later (Classical Era) site alignments recognize these two dates plus the alignment for July 25, 685 BC and retrocalculated dates of August 12 or 13, 3114 BC, and retrocalculated dates for the culmination of the Pleiades related to 2349 BC (the "flood of Noah"). Although I had already determined these dates approximately from other sources, I was still surprised to find the Gregorian equivalent calendar dates recorded specifically in Mesoamerica.

In March 2008, thanks to many other sources, I started to collate information on the "flood of Noah" event in terms of the mechanics and dating. I could substantiate the related fall Pleiades festivals, noted in Mo Mandelkehr's book, *The 2300 BC Event* (2006), from Mesoamerican alignments, and the Ussher date of the "flood of Noah."

I have added the "return of the axis mundi," directly after 3147, 2349, and 1492 BC (noted in the *Chilam Balam*). In 1994 Milton Zysman had suggested this for 1492 BC as an extended Aurora, but it more likely represented a plasma plume.

In April 2008, I finally caught up with Anthony Peratt's second paper on the High-Current Z-Pinch Aurora in antiquity (published August 2007). This has been incorporated into the chapter on Archaeology initially. Although details are lacking and dates are fuzzy and inconclusive, the information comfortably fits the chronology based on archaeology which I had developed much earlier. Both the *Chilam Balam* and the *Popol Vuh* recall this period, as do Vedic, Sumerian, and a number of European sources.

In April 2008, I resolved the starting date of the 685 BC Venus nova event from information of the *Popol Vuh* and mention of the time span in the *Chilam Balam*, and collated this with Valley of Mexico site alignments. Book 10 of the *Chilam Balam* offers some five instances which verify the dates, including mention of the year 680 BC in Eastern Mediterranean chronology (as Tun 9). The *Sibylline Star Wars* text suddenly fell into place correctly.

In May, 2008, I started to determine the orbital periods of Venus and the validity of the 52-year Venus cycle, and traced the periods of the Mesoamerican "may" from 2193 BC to the time of the Spanish invasion.

The remainder of Book 11 of the *Chilam Balam* started to fall into place in September, 2008. I had been working on this for months. Book 11 is the most obscure and opaque text I have ever encountered. But slowly the revelation came that this was a retelling of the "first creation" of the Maya plus events from long before that.

The sequence of events can be followed, in fact, from the cup and tail sightings of before 30,000 or 40,000 years ago, through to the other celestial aspects which I had already traced in the European Upper Paleolithic (in the chapter on Archaeology), Carbon-14 difference peaks since 50,000 BC (mentioned by Firestone), plus the information from the sighting of the Peratt Column after 10,900 BC, up to the nova event of Saturn in 4077 BC.

It is, of course, astounding to think that an American Indian tribe possessed graphic records of events in the sky which spanned 30,000 or 40,000 years. But so do the European Cro-Magnon. The sourcebooks are mentioned in the *Popol Vuh* also, and the period of the miseries of the 1500-year period of 10,900 to about 9,000 BC (the Younger Dryas) is described extensively.

In December 2008 I again thought I was finished, having completed an analysis of the *Popol Vuh*. However, the worldwide occurrence of the "celestial twins" only became comprehensible late in December, and required a few paragraphs to be added to two chapters.

Change Log for 2009

In January 2009:

- Corrected crescent rotation, *Jupiter* chapter;
- Chapters 13 - 21 retitled as Appendixes A - J;
- South plasmoids differentiated, *Popol Vu* chapter;
- RCS edit 20 and 21 started;
- Abraham Sachs's comments, *History* chapter.

In February 2009:

- Khet glyph for trees, *Chilam Balam* chapter;
- RCS edit 20, *Chilam Balam* chapter;

- "first creation" dates, *Olmec Record* chapter;
- Day of Kan moved, *Day of Kan* chapter;
- Pleiades settings added, *Alignments* appendix;
- 70 alignments, *Olmec* chapter;
- La Venta diagram corrected, *Olmec* chapter;
- general history added, *Olmec* chapter;
- moved ten degrees of Hezekiah to *History* chapter;
- moved latitude of Babylon to *History* chapter;
- rewrite of *Polar Relocations* file;
- update of *Notes on Comet Tempel 1* file;
- Clube and Napier expanded, *Other Cosmologies* file;
- very short summary added; RCS 20 edit completed.

In March 2009:

- Twins of Mithra, *History* chapter;
- change in the axis, *Mechanics* appendix;
- Younger Dryas dates corrected;
- note on the tropical year, *Maya Calendar* chapter;
- earlier harvest in Greece before 685 BC, *History* chapter;
- Dennis Cox's landforms added, *Mechanics* appendix;
- Manu's rescue from the Rig Veda, *Archaeology* chapter;
- Vishnu measures the Earth trice, *Archaeology* chapter;
- first temple alignment at Jerusalem, *History* chapter;
- Sed Festival dated to Peratt column, *Noah* chapter.

In April 2009:

- Braziers at axis mundi, *Jupiter* chapter;
- Osiris risen in 2349 BC, *Jupiter* chapter;
- moved *Archaeology* chapter to "Ancient History" section;
- extinction of mega fauna, *Ice Age* chapter;
- Catal Huyuk updated, *Archaeology* chapter;
- Katun 11 for Long Count, *Maya Calendar* chapter;
- Unas wades in blood and gore, *Jupiter* chapter;
- 3147 BC correction, systemically;
- recalculated King List, *Chronology* appendix;
- recalculated Jupiter recession *Jupiter* chapter;
- Mesopotamian circle standards, *Jupiter* chapter;
- better shadow estimates, *Ice Ages* chapter;
- rewrote Catal Huyuk, *Archaeology* chapter;

- Lascaux claviform notes, *Archaeology* chapter;
- 2009 Swine Flu note, *Epidemics* file.

In May 2009:

- Polar plumes described by NASA, *Gilgamesh* chapter;
- "Iliad" and "Odyssey" contacts, *Quetzalcoatl* chapter;
- 14C table corrected for 3147 BC, *Chronology* appendix;
- added "Velikovsky Encyclopedia" link, *Links* file;
- added Earth compression marks, *Mechanics* appendix;
- new Long Count corrections, *Chilam Balam* chapter.

In June 2009:

- "Shih Chi" search for islands, *Archaeology* chapter;
- "Kojiki" first plasmoids created, *Archaeology* chapter;
- "Survey of the World" rewrite, *Olmec Record* chapter;
- 3x3 calculating board, *Olmec Record* chapter;
- couplet kenning in Chilam Balam, *Olmec Record* chapter.

In July 2009:

- Venus orbits summary, *Mechanics* appendix;
- Venus orbital overlap with Earth, *Mechanics* appendix;
- Venus distances to Earth, *Exodus* chapter;
- removed Scott, Peratt in Brazil, *Gilgamesh* chapter;
- Jupiter and the twin mountains, *Jupiter* chapter;
- appearance of the turtle, *Archaeology* chapter;
- the face in the south, *Archaeology* chapter.

In August 2009:

- A cause for cessation of forces, *Mechanics* appendix;
- appendixes relabeled as chapters 13 through 20;
- God speaks of the measuring lines, *Archaeology* chapter;
- Ah Uuc Cheknal rubs the Earth, *Chilam Balam* chapter;
- Van Allen belts, the celestial cow, *Gilgamesh* chapter;
- systemic substitution of 3147 BC for 3114 BC.

In September 2009:

- Corrected showing of Pleiades in 2349 BC, *Jupiter* chapter;
- Pleiades in 685 BC, *Day of Kan* chapter;
- celestial cow in 2349 BC, *Jupiter* chapter;
- Ussher note on lifetimes, *Moses* chapter;

- celestial cow in 1492 BC, *Moses* chapter;
- elevation of Sirius, various latitudes, *Jupiter* chapter;
- gravitation of Patten and Windsor, *Other Cosmologies* file;
- the Nine Bows identified, *Gilgamesh* chapter;
- corrected Peratt misreading, *Archaeology* chapter.

In October 2009:

- Removed "close calls" systemically;
- "Contending of Horus" details, *Gilgamesh* chapter;
- trimmed text of *Evolution* chapter;
- dropped vulture elaboration at Catal, *Archaeology* chapter;
- age of Thoth corrected, *Chronology* chapter;
- Horus as first God, *Polar Sun* chapter.

In November 2009:

- Mercury as Phaethon, *Quetzalcoatl* chapter;
- the Great Year, *Sibylline Star Wars* chapter.

In December 2009:

- Barrows and henges, *The Age of the Gods* chapter;
- movement of Mars, *The Age of the Gods* chapter;
- day of Kan for 2349 BC, *Chilam Balam* chapter;
- Ammizaduga sorted, *Quetzalcoatl* chapter.

Narrative for 2009

In January 2009 I managed to differentiate the southern plasmoids in the *Popol Vuh*.

In February 2009 I recognized a "first creation" date from texts of Maya stelae, and realized what the Maya were talking about when they inscribed what they had gleaned from their books:

"And then the past epoch ended. On 4-Ahau 8-Cumku [August 13, 3114 BC], 13 Baktuns were completed."

"On 4-Ahau 8-Cumku, was (first) seen the image of the turtle."

In fact, the date of 3114 BC, for when "the epoch ended," was added to the inscription above by an archaeologist, whereas the inscription, in that it recounts the image of the turtle, was almost certainly meant to designate the end of the

"first creation," the year 8347 BC -- 0.0.0.0.0 on the Long Count, rather than 13.0.0.0.0.

That the predecessors of the Maya (and Olmecs) had kept tallies of years since that time, and much earlier, is certain from the contents of the *Chilam Balam* and clear from the *Popol Vuh*. This sets the year for the first appearance of the Peratt column of the south.

In March 2009 I added the twins of Mithra, and Dennis Cox's landforms.

In April 2009 I added the first notes on the extinction of mega fauna, and the fact that Unas waded in blood and gore. This last recalls the blood-red skies of 2349 BC, which he probably witnessed.

In May 2009, I saw from a TPOD by vd Sluijs at Thunderbolts.info that the polar plumes which I had theorized as having existed were actually detected (in dark mode) and described by NASA.

I also started adding Earth compression marks, initially from Dennis Cox's site. He has since turned his attention to the current papers on the "comet explosion" over the Laurentide ice sheet at the start of the Younger Dryas as presented by Firestone.

In June 2009, I added instances of the three southern plasmoids from the Chinese *Shih Chi* and the Japanese *Kojiki*. I determined the operation of the Maya 3x3 calculating board as a means of explaining the long time spans mentioned the Book in 11 of the *Chilam Balam* as couplet kenning -- a poetic version of the counting board.

In July 2009, I added, finally, the Maya "image of the turtle," and added the face in the south, noted earlier by Peratt in his paper with Yao.

In August 2009, I added a cause for the cessation of repulsive electrical forces, and added the excitement of the Van Allen belts as a model for the celestial cow of Egyptian lore about Hathor.

In September 2009 it became clear what the Egyptian "Nine Bows" were.

In November of 2009, I finally realized that Mercury had occupied a position between Saturn and Mars in the "Age of the Gods." This would account for the

fifth planet of the *Popol Vuh*, the planet behind Mars which Talbott thought to be Venus.

This would account for the close orbital association of Mars and Mercury after 3050 BC and still in the 8th and 7th century BC. Additionally this accounts for the paramount importance of Mercury as a god in Egypt, Mesopotamia, and among the Celts. This also accounts for the lower double bulges depicted in figurines during the Upper Paleolithic of approximately 17,000 to 14,000 years ago. Mercury was likely captured at about that time.

In December 2009 I finally cleaned up dates of barrows and henges, but still have cursuses undefined. The changes in form correspond to changes in the sky. Some researchers have started to relate crop circles to regions of plasma streaming -- I have not added this yet.

Change Log for 2010

In January 2010:

- New script for monthly stats;
- The Thirteen redefined, *Chilam Balam* chapter;
- Jupiter's satellite count, *Chilam Balam* chapter;
- Izapa rewrite, *Olmec Alignments* chapter;
- location of 1492 BC impact, *Exodus of Moses* chapter;
- cleaned up alignments, *Olmec Alignments* chapter.

In February 2010:

- Moon and Sun and the twins, *The Popol Vuh* chapter;
- The hour of the plasmoid, *Start of History* chapter;
- 3147 BC diagrams, Appendix *Celestial Mechanics*;
- orbit graphics revised, Appendix *Celestial Mechanics*;
- synodic period of Mars, *Maya Calendar* chapter;
- 819-day calendar rotation, *Maya Calendar* chapter;
- Mars orbit, *The Flood of Noah* chapter;
- Juergens Moon and Mars part 1 found again.

In March 2010:

- 776 date corrected, Appendix *Celestial Mechanics*;
- Avila and Molina quote, *Exodus* chapter;
- raised beaches in far south, *Exodus* chapter;
- images updated, *Celestial Mechanics* appendix;

- added 819-cycle note, *Maya Calendar* chapter;
- expanded Beowulf note, *Career of Jupiter* chapter;
- close encounters, Appendix *Celestial Mechanics*;
- mountain building, Appendix *Celestial Mechanics*;
- Patten and Windsor disputed, Appendix *Celestial Mechanics*.

In April 2010:

- Dates on barrows, *The Age of the Gods* chapter;
- Wilcox on ownership, *The Age of the Gods* chapter;
- excarnation, cursuses, *The Age of the Gods* chapter;
- darkness of the Younger Dryas, *Tunguska* chapter;
- Nanometer size dust in the stratosphere, *Tunguska* chapter;
- Tunguska added, *Tunguska* chapter;
- Chicxulub damage measure, *Tunguska* chapter;
- Grand Canyon scar, *Tunguska* chapter;
- the Laurentide ice sheet, *Younger Dryas* chapter;
- the Great Lakes detonation, *Tunguska* chapter.

In May 2010:

- Great Lakes excavated, *Younger Dryas* chapter;
- Eyton and Parkhurst, *Carolina Bays* chapter;
- Davias and Gilbride mudballs, *Carolina Bays* chapter;
- geology of Lower Michigan, *Carolina Bays* chapter;
- dropped dates for the Grand Canyon, *Tunguska* chapter.

In June 2010:

- Chapter 4 relabled *The Event of the Younger Dryas*;
- review of Firestone book, *Younger Dryas* chapter;
- hominids moved to *Saturn and Evolution* chapter.

In July 2010:

- Details of the carbon products, *Younger Dryas* chapter;
- earlier magnetic anomalies, *Younger Dryas* chapter;
- Unas pyramid alignment, *The Career of Jupiter* chapter;
- dropped Firestone book, *Younger Dryas* chapter;
- precession from Topper, *The Eight Century* chapter;
- Isaiah's virgin redated, *The Eight Century* chapter.

In August 2010:

- Jupiter's fire to 2150 BC, *Career of Jupiter* chapter;
- Tower of Babel placed, *Career of Jupiter* chapter;
- Jupiter made coherent, *Career of Jupiter* chapter;
- Tun 9 points to 680 BC, *The Chilam Balam* chapter.

In September 2010:

- Moved "Nevada Conference" to *Introduction* chapter;
- altars at San Lorenzo, *Day of Kan* chapter;
- altars in pairs at La Venta, *Day of Kan* chapter.

In October 2010:

- Reorganized chapters - cutting them in halves;
- removed this update record;
- dropped Zip file, short recap.

In November 2010:

- Finally settled on 2150 BC as the extinction of Jupiter;
- Abraham is Jupiter; lives 199 years from 2349 BC to 2150 BC;
- actual Tower of Babel involved Mercury on March 23, 686 BC.

In December 2010:

- Added the Phoenix to the forms of the Peratt plasmoid;
- added Khepera the dung beetle to Peratt plasmoids.

Narrative for 2010

January: I spent far too much time on Izapa, but managed to identify the five Gods responsible for creation in stela number 5. (Malmstrom's data is entirely fudged. Aveni's is incorrect and sloppy.)

Determined the location of the 1492 BC impact by actually looking at the date of the event -- after someone suggested a location adjacent to South America, which my badly worded narrative would have suggested.

February: The hour that the plasmoid arrived was determined from an Australian aboriginal "legend" which retells the delivery of the plasmoid, to within a range of two hours. This verified what I had assumed was seen afterwards in the Mediterranean and Mesoamerican region.

I checked an ephemeris for the location of the Sun and Moon on the day the twins first "jumped into the oven" in 685 BC, and when the session was over on July 26th. It became clear why the twins "belong to" the Sun and Moon in the *Popol Vu*.

I redid diagrams of a possible interaction between Saturn and Jupiter. And orbital graphics were revised to reflect the very elliptical orbit of Mars and the nearly equal orbit of Mercury.

Assumed that the synodic period of Mars, as suggested by Patten and Windsor, was correct and had remained the same since 3067 BC. I calculated the synodic periods for Mars under these conditions. That suddenly explained the curious "819-day calendar rotation" of the Maya -- if some assumptions are made of the conservative application of calendar reforms.

March: Took note of Patten and Windsor's close encounters with Mars, and modified this to some extent to account for continuous thunderbolts. But I disputed aspects of Patten and Windsor's analysis, which excludes any consideration of electrical effects.

April: "Nanometer dust in the stratosphere" is from a recent article in *Scientific American*, where it is suggested that warfare between India and Pakistan would result in 10 years of dry, cold, dark climate. This notion matches the climate of the Younger Dryas.

I dropped consideration of Saturn as the cause for 1500 years of shadow, for with nanometer dust in the stratosphere we have all that is required for a long "nuclear winter."

Details of the Tunguska Event were examined, and a determination was made that the "impact area" is not an impact, but a cathode emission area for a lightning bolt which struck the incoming object, which probably landed elsewhere (details of which are currently emerging) or disintegrated. The "exploding comet" notion was added to offer what the consensus model for an unexplained "impact" looks like. This event will be endlessly replayed in future analysis, and became the Establishment Analog.

The scar at the Grand Canyon was presented as an example of the scale of an electrical event, along with data from Chicxulub.

The demise of the Laurentide Ice Sheet was followed up extensively, after Firestone, and the Michigan "atomic" or "nova event" detonation.

May: Acquired Firestone's lurid *Cycle of Cosmic Catastrophes*, Mike Baillie's *Exodus to Arthur*, and EP Grondine's *Man and Impact in the Americas*. All solid believers in cometary impacts. All except Firestone use mainstream consensus dates, suppressing all other data.

Spent endless time trying to not seriously insult Firestone's thesis while substituting electrical and plasma causality to achieve the same results. I will need to look at the carbon products next.

July: The various diverse particles and chemistry attributed without blinking to "impacts" by Firestone, West, and Warwick-Smith in their 2006 book drove me nuts. I have given up on the mass of discordant data. A critique is not even apt justice for people who don't know where the Sun rises in March. I may add some of this back in later. Meanwhile the "book review" was moved to Othergroup.org.

August: I have many times looked at the phrase, "These things were present here when misery settled, father, in Tun 9," always assuming that the scribe of the *Chilam Balam* misread the Tun number. This phrase follows the paragraph which relates the events of 685 BC. I suddenly realized that the scribe made no mistake. Tun 9 is 680 BC -- the Eastern Mediterranean chronology calendar year equivalent to the ephemeris year of 685 BC. Duh.

September: I really needed to stress the strange grasping after causes by Firestone, et al., in their 2009 paper on the start of the Younger Dryas. Thus a reference to Chapter 10 is included in the index file. Also added a few more accolades; reorganized the order of the index.php file.

Change Log of 2011

In March 2011:

- Script added for creation of pdf's;
- added change log, 2005 - 2011;
- editing continues;
- Lunch with Dave Talbott.

In July 2011:

- Attended NPA conference.

In September 2011:

- Vander Ploeg completed word edit;
- sense edit started.

In October 2011:

- Axial alignments since 3147 BC;
- correction to Canopus decree, finally.

In November 2011:

- Suggesting a fire on the Moon;
- sense edit ended.

In December 2011:

- Structural updates for pdf.

Change Log of 2012

In January 2012:

- Las Vegas Thunderbolts conference;
- structural updates for mobi;
- more typos corrected, thank you Danford.

In March 2012:

- Polar plumes as Lituus staffs.
- Life span of Adam tied to Saturnian dates.
- Roman kings added.
- Preface added as index file.

In April 2012:

- Height of the Absu increased 500 miles.
- Element of *Prose Edda* added.

In June 2012:

- Added note on contacts at equinox, Mechanics appendix.
- Dropped Patten critique, Mechanics appendix.

In July 2012:

- Date for the Denderah zodiac established, Star Wars chapter.

In August 2012:

- Mars in the Early Bronze Age, Chapter 21.
- Sodom and Gomorrah.

In November 2012:

- 26 degrees as the earliest axial inclination.
- Near inversion suggested for 1492 BC.

In December 2012:

- Excellent word edit by Kevin Widen completed.

Change Log of 2013

In September 2013:

- Changing polarity of Saturn from negative to positive.

In October 2013:

- Danford Vander Ploeg completes the latest total edit.

Change Log of 2014

In March 2014:

- Moved the source of the Flood to the South Pole.

In July 2014:

- Completed the issue 40 edit.

In October 2014:

- Did image credits.
- Did metric conversions.

In December 2014:

- Set the "first creation" at 10,900 BC.
- Set end of "first creation: at 8347 BC.

Change Log of 2015

In March, April 2015:

- Removing the tulip shape below Saturn; edit 42,
- Complete edit 41 of chapters,

- Sun.html javascript substituted for sun.bas,
 - Found latitude for blowgunner pot inscription.
 - Verified May 28 date for approach of Jupiter in 3147 BC.
-
-

URL of this document: <http://saturniancosmology.org/>

Feel free to email me with any comments or corrections:
jno@saturniancosmology.org

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NASA/JPL NEWS RELEASE Posted April 7, 2002

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